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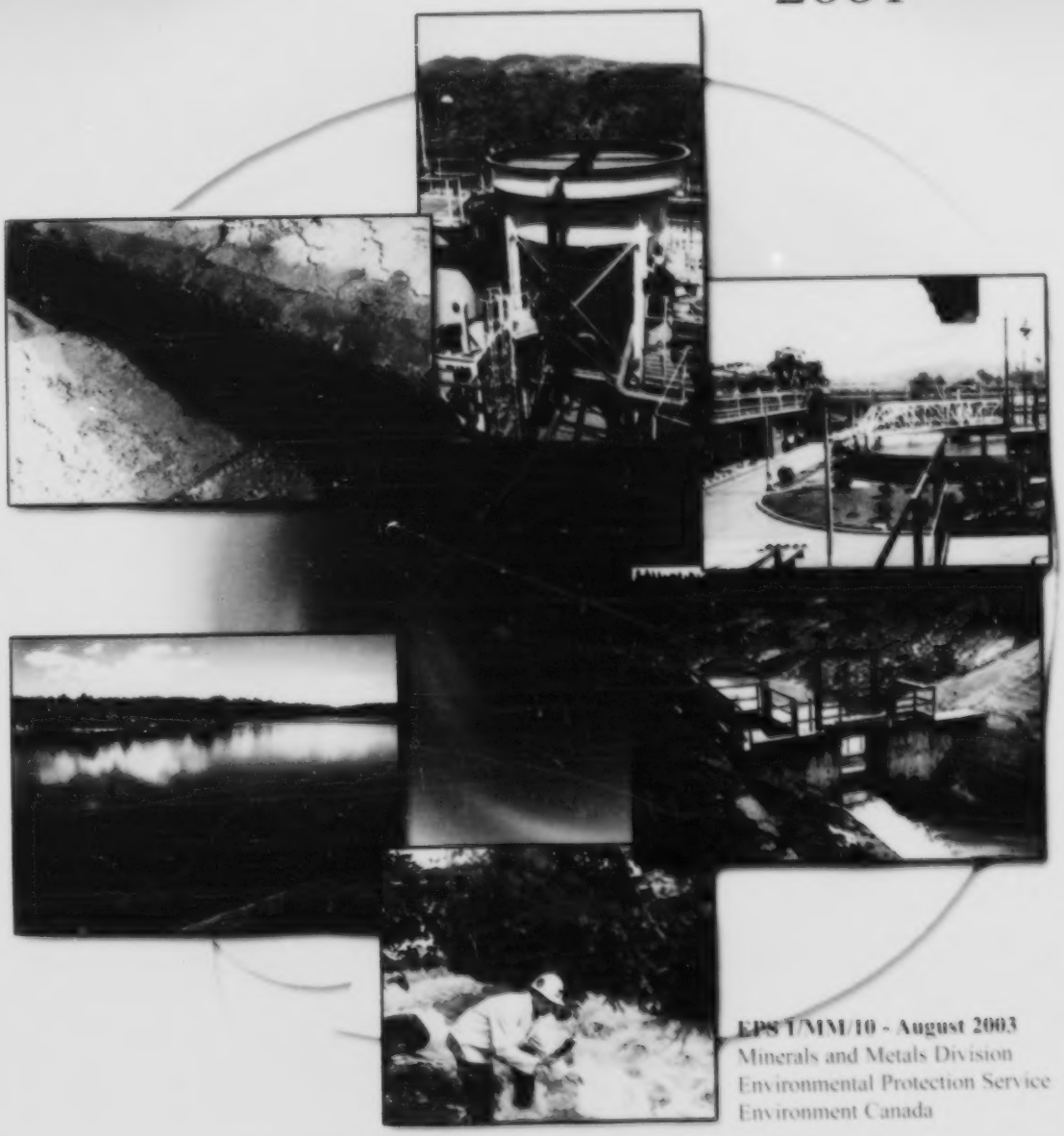
WATER POLLUTION PREVENTION AND CONTROL
in the Canadian Metal Mining Industry
2001



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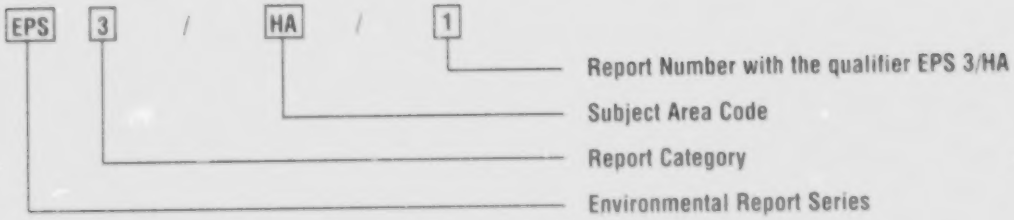

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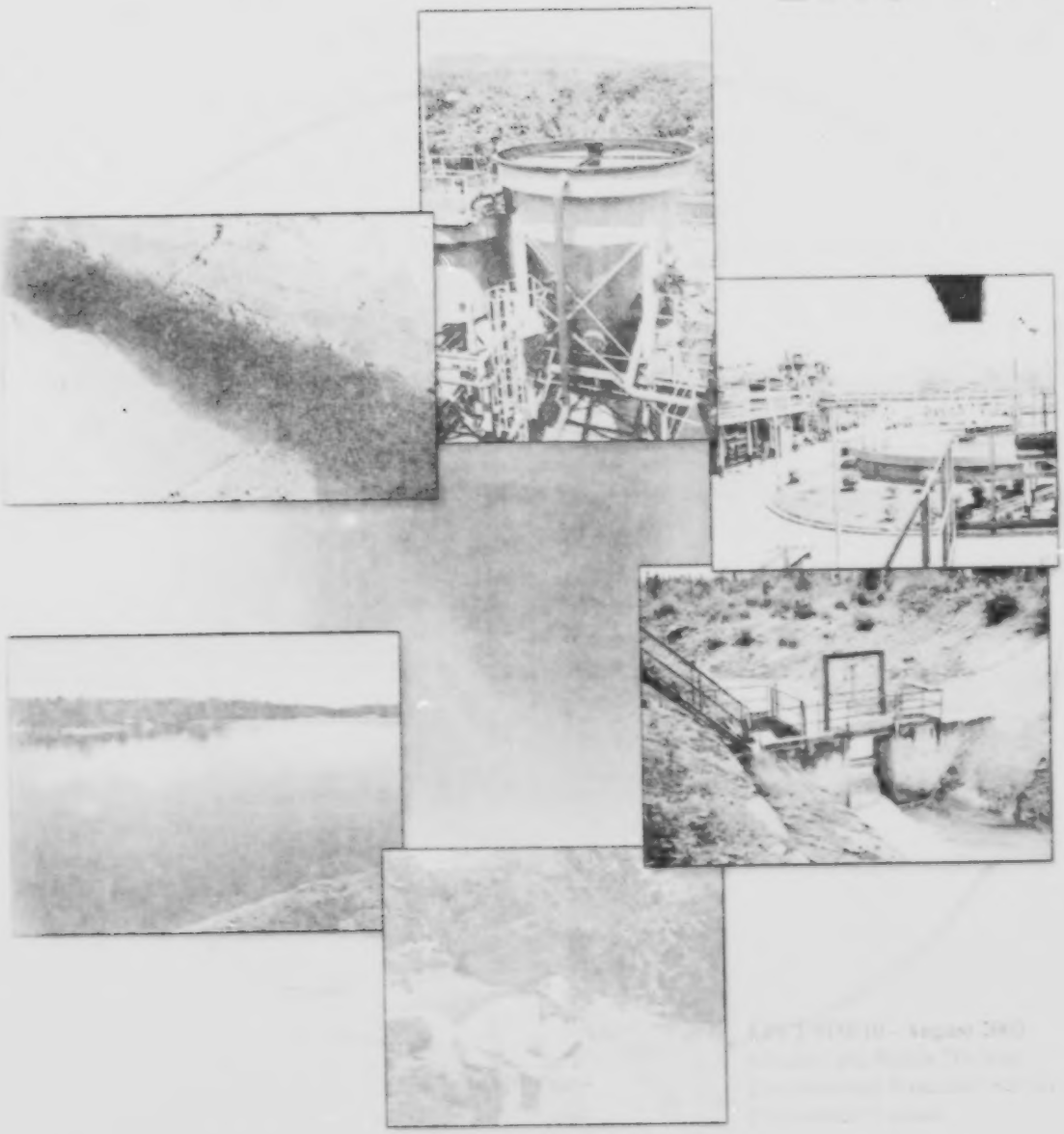

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The data used in this report were obtained principally through cooperative arrangements between the federal and provincial environment agencies. The data were consolidated from several sources by Environment Canada staff and are based on samples collected and analyzed by mining companies and reported to provincial, territorial and federal agencies.

ABSTRACT

This report summarizes the performance of Canadian metal mines with respect to selected standards prescribed by the *Metal Mining Liquid Effluent Regulations* (MMLER) and the associated Metal Mining Liquid Effluent Guidelines (MMLEG) in 2001. This is the seventh in a series of reports that have been published by Environment Canada since 1982.

This will be the last report on performance with respect to the MMLER, as these regulations were repealed and replaced by the new Metal Mining Effluent Regulations (MMER) on December 6, 2002. Environment Canada expects to publish a report on mine performance with respect to the new MMER in 2004.

More information on the MMER and related guidance documents is available on Environment Canada's Green Lane at www.ec.gc.ca/nopp/docs/regs/mmer/en/index.cfm

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SUMMARY

This report summarizes the performance of Canadian metal mines with respect to the *Metal Mining Liquid Effluent Regulations* (MMLER) and the associated Metal Mining Liquid Effluent Guidelines (MMLEG) in 2001. This is the seventh in a series of reports that have been published by Environment Canada since 1982.

The report is based on an analysis of monitoring data reported by mine operators to federal, provincial and territorial regulatory authorities. For the purposes of this report, performance was based on an analysis of monthly effluent quality data. Mines subject to the regulations were considered to have met the Monthly Effluent Quality Standards (MEQS) for a given month if all effluent discharges complied with the maximum authorized monthly mean concentrations for that month. Similarly, mines subject to the guidelines were considered to have met the MEQS for a given month if all effluent discharges conformed with the monthly mean concentration objectives for that month. Performance for the year was based on the percentage of operational months during which a mine met the MEQS.

In 2001, a total of 56 metal mines operating in Nunavut and all provinces except Alberta, Nova Scotia and Prince Edward Island were subject to the MMLER and associated guidelines. Of the 28 metal mines that were subject to the regulations, 21 achieved 100% compliance with the MEQS. Three regulated mines that did not discharge effluents during 2001 were excluded from this performance assessment. The overall rate of compliance with the MEQS was 93.9% for regulated mines. Of the 28 metal mines that were subject to the guidelines, 15 achieved 100% conformance with the MEQS. The overall rate of achievement of the MEQS was 97.0% for guideline mines.

This report identifies the mines that did not achieve full compliance or conformance with the MEQS in 2001. The major causes of underperformance were elevated concentrations of copper and total suspended matter.

A comparative summary of the overall achievement of mines with respect to the MEQS for 1998, 1999, 2000 and 2001 is presented in Table 1.

Table 1: Comparative Summary of Achievement for 1998, 1999, 2000 and 2001

	1998[1]	1999[2]	2000[2]	2001
Overall Achievement of MEQS by Regulated Mines	97.3%	96.5%	96.6%	93.9%
Overall Achievement of MEQS by Guideline Mines	92.3%	93.5%	94.6%	97.0%

(1) Environment Canada, *Status Report on Water Pollution Control in the Canadian Metal Mining Industry 1998*, EPS 1/MM/6, March 2001.
(2) Environment Canada, *Status Report on Water Pollution Prevention and Control in the Canadian Metal Mining Industry 1999-2000*, EPS 1/MM/9, June 2002.

SOMMAIRE

Le présent rapport résume la performance des mines canadiennes de métaux en 2001 à l'égard du *Règlement sur les effluents liquides des mines de métaux* (RELMM) et des Lignes directrices connexes sur les effluents liquides des mines de métaux (LDELMM). Il s'agit du septième rapport de ce genre publié par Environnement Canada depuis 1982.

Le rapport est fondé sur l'analyse des données de contrôle communiquées par les exploitants de mines aux organismes fédéraux, provinciaux et territoriaux de réglementation. Aux fins du présent document, la performance a été évaluée en fonction de l'analyse des données mensuelles sur la qualité des effluents. On a jugé que les mines assujetties au Règlement étaient conformes aux normes mensuelles de qualité des effluents (NMQE) pour un mois donné si tous les rejets d'effluents ne dépassaient pas la moyenne mensuelle des concentrations maximales autorisées pour ce mois. De même, on a jugé que les mines assujetties aux Lignes directrices satisfaisaient aux NMQE pour un mois donné si tous les rejets d'effluents rencontraient les objectifs relatifs aux concentrations moyennes mensuelles pour ce mois. La performance annuelle a été fondée sur le pourcentage de mois d'exploitation pendant lesquels une mine a satisfait aux NMQE.

En 2001, 56 mines de métaux exploitées au Nunavut et dans toutes les provinces, à l'exception de l'Alberta, de la Nouvelle-Écosse et de l'Île-du-Prince-Édouard, étaient assujetties au RELMM et aux lignes directrices afférentes. Des 28 mines de métaux assujetties au Règlement, 21 se sont conformées aux NMQE dans une proportion de 100 %. Trois mines qui n'avaient pas rejeté d'effluent en 2001 ont été exclues de la présente évaluation de la performance. Pour les mines assujetties au Règlement, le pourcentage global de conformité aux NMQE a été de 93,9 %. Des 28 mines de métaux assujetties aux Lignes directrices, 15 ont satisfait aux NMQE dans une proportion de 100 %. Pour ces mines, le pourcentage global de satisfaction aux NMQE a été de 97,0 %.

Le présent rapport fait état des mines qui ne se sont pas conformées ou qui n'ont pas satisfait aux NMQE en 2001. Les principales causes de cette contre-performance ont été les concentrations élevées de cuivre et de matières totales en suspension.

Le tableau 1 présente un résumé comparatif du pourcentage global de satisfaction des mines aux NMQE en 1998, 1999, 2000 et 2001.

Tableau 1 : Résumé comparatif de performance pour 1998, 1999, 2000 et 2001

	1998[1]	1999[2]	2000[2]	2001
Performance globale de conformité aux NMQE par les mines assujetties au Règlement	97,3%	96,5%	96,6%	93,9%
Performance globale de conformité aux NMQE par les mines assujetties aux Lignes directrices	92,3%	93,5%	94,6%	97,0%

(1) 1) Environnement Canada, *Rapport d'étape sur la dépollution de l'eau dans l'industrie canadienne des mines de métaux, 1998*, SPE 1/MM/6, mars 2001.

2) Environnement Canada, *Rapport d'étape sur la prévention de la pollution et la dépollution de l'eau dans l'industrie canadienne des mines de métaux 1999-2000*, SPE 1/MM/9, juin 2002.

1.0 INTRODUCTION

This report summarizes the performance of Canadian metal mines with respect to the *Metal Mining Liquid Effluent Regulations* (MMLER) and the associated Metal Mining Liquid Effluent Guidelines (MMLEG) in 2001. This is the seventh in a series of reports that have been published by Environment Canada since 1982.

This will be the last report on performance with respect to the MMLER, as these regulations were repealed and replaced by the new *Metal Mining Effluent Regulations* (MMER) on December 6, 2002. Environment Canada expects to publish a report on mine performance with respect to the new MMER in 2004.

The *Fisheries Act* provides the primary legislative authority for federal water pollution control programs. Subsection 36(3) of the *Fisheries Act* prohibits the deposit of deleterious substances into waters frequented by fish, unless authorized by regulations. The MMLER were passed in February 1977 under the *Fisheries Act*. The regulations applied to new, expanded and reopened metal mines, but not to gold mines using the cyanidation process as defined in the regulations. Guidelines were published at the same time to establish effluent quality objectives for all other metal mines that were in operation prior to the promulgation of the MMLER.

Environment Canada administered and monitored compliance with the MMLER and achievement of the MMLEG. The regulatory requirements were typically implemented through licences or permits issued by provinces or federal agencies, but in some cases there was direct regulatory involvement by Environment Canada. Inspections were also conducted by staff of Environment Canada in all regions.

An overview of the MMLER and the MMLEG and their application to Canadian metal mines is presented in Section 2.

The status of individual mines in meeting the Monthly Effluent Quality Standards (MEQS) of the regulations and guidelines in 2001 is reviewed in Section 3.

2.0 METAL MINING LIQUID EFFLUENT REGULATIONS (MMLER) AND GUIDELINES (MMLEG)

The MMLER, the MMLEG, an Environmental Code of Practice for Mines and Explanatory Notes were published by Environment Canada in 1977 in a single report entitled *Metal Mining Liquid Effluent Regulations and Guidelines* (EPS 1-WP-77-1). The legal reference to the regulations is (the) *Consolidated Regulations of Canada 1978*, Chapter 819 (Government of Canada, 1978).

The MMLER prescribed authorized concentration limits for deleterious substances in mine effluents that discharged to waters frequented by fish. The limits were based on "best practicable technology" as determined by a state-of-the-art review by a joint federal-provincial-industry task force. The regulated parameters were arsenic, copper, lead, nickel, zinc, total suspended matter (TSM), radium-226 and pH. The regulations applied to new, expanded and reopened metal mines, but did not apply to gold mines using the cyanidation process (as defined in the MMLER).

In response to a commitment to "update and strengthen" the MMLER in the Government of Canada's 1990 environmental policy, Environment Canada held a multi-stakeholder consultative workshop in November 1992 to identify issues that should be addressed. One of the workshop's recommendations was to assess the known aquatic effects of mining in Canada through what was subsequently identified as the "AQUAMIN" process.

The AQUAMIN process was initiated in 1993 to determine the effectiveness of the MMLER by assessing existing information on aquatic effects in Canada and to make recommendations on:

(i) amendments to the MMLER and the federal regulatory framework;

(ii) the design of an Environmental Effects Monitoring (EEM) program for mining to identify effects in the aquatic environment; and

(iii) information gaps requiring further research.

The AQUAMIN process was carried out by a multi-stakeholder group that included representatives from the federal government, provinces, industry, and environmental and aboriginal organizations. The process reviewed existing (post-1985) site-specific data and reports on the effects of mine effluents on the receiving environment to assess the efficacy of the MMLER in protecting the aquatic environment. The key recommendations of the April 1996 final report of AQUAMIN were as follows:

(i) to revise the MMLER to ensure a consistent national effluent quality requirement at Canadian mines;

(ii) to set site-specific requirements where necessary to protect local receiving environments; and

(iii) to require EEM programs to provide reporting and feedback on the effectiveness of protection measures.

Environment Canada developed a process and plan to obtain multi-stakeholder input on regulatory issues associated with the implementation of AQUAMIN recommendations in early 1997. This led to the development and subsequent publication of the proposed *Metal Mining Effluent Regulations* (MMER) in the *Canada Gazette*, Part I, on July 28, 2001. This followed a 60-day public review period. On June 6, 2002, the new MMER were registered and subsequently published in the *Canada Gazette*, Part II, on June 19, 2002. The new MMER:

- apply to all metal mines in Canada;
- add new limits for cyanide, while retaining the MMLER limits for metals;
- add a new effluent pH range of 6.0-9.5;
- require the production of effluent that is non-acutely lethal to rainbow trout;
- require comprehensive EEM by mines; and
- lower the MMLER limits for TSM.

The new MMER have much more extensive reporting requirements than the MMLER, and this will be reflected in Environment Canada's first report on performance with the new regulations.

Table 2: Authorized Levels of Deleterious Substances Prescribed in the MMLER

Substance	Maximum Authorized Monthly Arithmetic Mean Concentration	Maximum Authorized Concentration in a Composite Sample	Maximum Authorized Concentration in a Grab Sample
Arsenic	0.5 mg/L	0.75 mg/L	1.0 mg/L
Copper	0.3 mg/L	0.45 mg/L	0.6 mg/L
Lead	0.2 mg/L	0.3 mg/L	0.4 mg/L
Nickel	0.5 mg/L	0.75 mg/L	1.0 mg/L
Zinc	0.5 mg/L	0.75 mg/L	1.0 mg/L
TSM	25.0 mg/L	37.5 mg/L	50.0 mg/L
Radium-226	10.0 pCi/L	20.0 pCi/L	30.0 pCi/L

Note:
1. All concentrations are total values, with the exception of radium-226, which is a dissolved value after filtration through a 3-µm filter.
2. The concentration objectives in the MMLEG have the same numeric values as the authorized levels prescribed in the MMLER.

Table 3: Authorized Levels of pH Prescribed in the MMLER

Parameter	Minimum Authorized Monthly Arithmetic Mean pH	Minimum Authorized pH in a Composite Sample	Minimum Authorized pH in a Grab Sample
pH	6.0	5.5	5.0

Note: The concentration and pH objectives in the MMLEG have the same numeric values as the authorized levels prescribed in the MMLER.

2.1 Application of the MMLER

The authorized levels of deleterious substances prescribed by the MMLER are shown in Table 2, and the authorized levels of pH are shown in Table 3.

In these regulations, a mine is defined as including "all metal mining and milling facilities that were used to produce a metal concentrate or an ore from which a metal or metal concentrate might be produced and associated smelters, pelletizing plants, sinter plants, refineries, acid plants and any similar operations where the effluent from such operations were combined with effluents from mining and milling." The regulations apply to new, expanded and reopened mines, but do not apply to existing mines that were in commercial production for at least 2 months in the 12 months immediately prior to February 25, 1977. A new mine is one that commenced commercial production on or after that date. An expanded mine is a mine that increased its production rate by more than 30% over the reference production rate after February 25, 1977. A reopened mine is one that resumed production on or after that date and was not an existing mine. A gold mine is defined as one where gold was recovered in the operations area by the process of cyanidation and accounted for more than 50% of the value of the output of the mine.

The release of deleterious substances in effluents from metal mines is related to, among other factors, the natural characteristics of the ore and uncontrollable water flows into the mine, waste rock dumps or tailings pond. Consequently, there is no direct relationship between the production rate of a mine and the amount of deleterious substances that may be released. Tailings or waste rock at inactive sites may also continue to release substantial amounts of deleterious substances.

2.2 Application of the MMLEG

The MMLEG apply to all metal mines, other than gold mines using cyanidation, that were operating prior to February 1977. The concentration and pH objectives in the MMLEG have the same numeric values as the authorized levels prescribed in the MMLER. Effluent quality objectives in the MMLEG are not legally enforceable. However, all mines are subject to the provisions of Subsection 36(3) of the *Fisheries Act*. In addition, a mine may be legally obligated to meet the guidelines if a federal, provincial or territorial government agency imposes these limits in a permit or licence issued under other legislation.

2.3 Implementation of the MMLER and MMLEG

Environment Canada and Fisheries and Oceans Canada cooperate with provincial and territorial governments and other federal agencies in implementing the MMLER and MMLEG. The federal government has generally

implemented the requirements of the regulations and guidelines through agreements with provincial or territorial authorities to include the federal effluent limits in licences or permits issued to a mining company. While this one-window approach is preferred, Environment Canada may sometimes deal directly with mines in cases where regulated or guideline limits have been exceeded.

Since uranium mines are licensed under the *Canadian Nuclear Safety and Control Act*, Environment Canada works closely with the Canadian Nuclear Safety Commission to implement the regulations and guidelines for uranium mines through licences issued by the Commission.

In the Yukon, Nunavut and the Northwest Territories, Environment Canada works closely with the territorial water boards and Indian and Northern Affairs Canada in the licensing of mines.

2.4 Monitoring and Reporting Requirements

Monitoring and reporting requirements are specified in Sections 6 through 10 of the MMLER. Modifications to the monitoring and reporting scheme are covered in Section 11 of the regulations.

The frequency with which effluents are to be sampled and analyzed for prescribed parameters is defined in Schedule 2 of the MMLER. Mining operations are required to monitor effluents and to report results on a regular basis. The reporting arrangements vary with each province and territory. Generally, regulated mines are required to report results directly to Environment Canada, while guideline mines may report directly to Environment Canada or through another agency.

Similar arrangements exist between Environment Canada and other federal agencies and have been formalized through various memoranda of understanding.

2.5 Gold Mines

Gold mining operations using cyanidation are not subject to either the MMLER or the MMLEG, as suitable technology to treat cyanide effluents had not been demonstrated when the regulations and guidelines were promulgated in 1977.

Gold mining operations that do not use cyanidation as defined by the MMLER are subject to the regulations and guidelines in accordance with the same criteria applied to other metal mines. A number of gold mines were developed or reopened in the 1980s and 1990s that provided ore or mineral concentrates for further processing by a mill or smelter at a different site. If these mines meet the definition of a "gold mine" in the MMLER, they are exempt from the regulations.

Over the course of the past 15 years, several effective cyanide removal technologies have been developed and implemented in Canada to treat cyanide-bearing effluents. These technologies include natural degradation, alkaline chlorination, the Inco SO_2/air process, hydrogen peroxide oxidation, the Hemlo gold process and the cyanide recovery process. On this basis, the AQUAMIN report recommended that gold mines using cyanide be subject to the updated and strengthened MMER.

3.0 PERFORMANCE DATA

3.1 Data Collection

The data used in this report were obtained through cooperative arrangements between federal and provincial agencies. The data were consolidated from several sources. However, the primary source was information submitted to federal, provincial and territorial regulatory authorities by mine operators. Closed mines and inactive tailings impoundment sites are not subject to the MMLER or MMLEG and are not addressed in this report.

3.2 Data Analysis

For the purposes of this report, performance was based on an analysis of monthly effluent quality data. Mines subject to the regulations were considered to have met the MEQS for a given month if all effluent discharges complied with the maximum authorized monthly mean concentrations for that month. Similarly, mines subject to the guidelines were considered to have met the MEQS for a given month if all effluent discharges achieved the monthly mean concentration objectives for that month. Performance for the year was based on the percentage of operational months during which a mine met the MEQS.

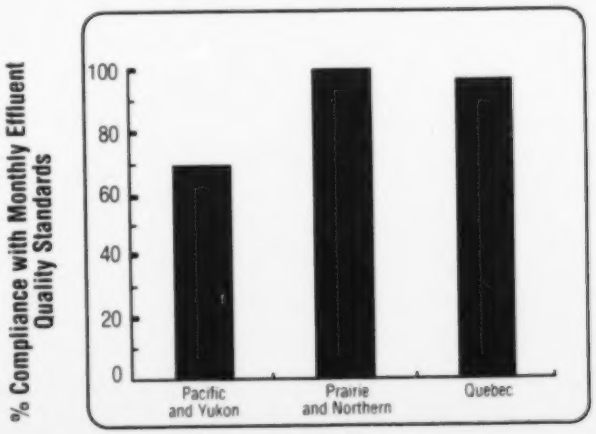
3.3 National Summary

In 2001, a total of 56 metal mines operating in Nunavut and all provinces except Alberta, Nova Scotia and Prince Edward Island were subject to the MMLER and the MMLEG.

Of the 28 metal mines that were subject to the MMLER, 21 achieved 100% compliance with the MEQS. Three regulated mines that did not discharge effluents were excluded from this performance assessment. The overall rate of compliance with the MEQS was 93.9% for regulated mines. The regional distribution of performance by regulated mines is illustrated in Figure 1, and performance by individual mines is summarized in Table 4. Of the eight specified parameters, the limits most often exceeded were those for copper and TSM.

Of the 28 metal mines that were subject to the MMLEG, 15 achieved 100% conformance with the MEQS. The overall rate of achievement of the MEQS was 97.0% for guideline mines. The regional distribution of performance by guideline mines is illustrated in Figure 2, and performance by these mines is summarized in Table 5.

Figure 1: Comparison of Regional Performance of Regulated Mines in 2001



No regulated mines in Atlantic Region.
Two mines in Ontario had no surface effluent.

Figure 2: Comparison of Regional Performance of Guideline Mines in 2001

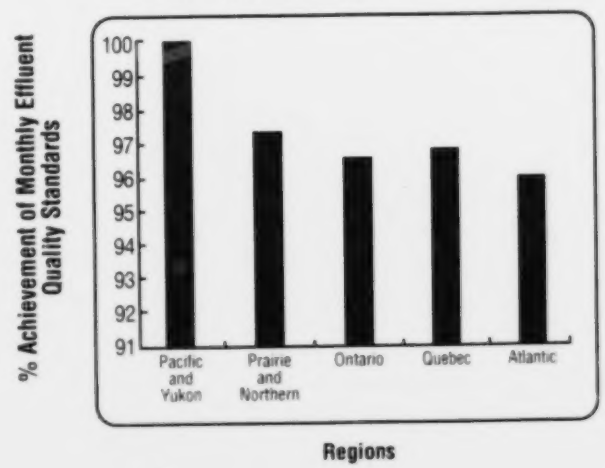


Table 4: Summary of Performance by Mines Subject to the MMLER in 2001

Mine Name (Company), Province	% Compliance with MEQS in 2001	Comments
1. Craigmont (Craigmont), British Columbia	N/A	No surface effluent discharged.
2. Eskay Creek (Homestake), British Columbia	100	
3. Huckleberry (Princeton), British Columbia	100	
4. Highland Valley Copper (Cominco), British Columbia	83.3	Did not comply with MEQS for TSM for 2 months.
5. Myra Falls (Boliden Westmin Canada Ltd.), British Columbia	0	Did not comply with MEQS for As for 2 months, Cu for 10 months, Ni for 1 month, Pb for 3 months, Zn for 12 months, TSM for 9 months and pH for 9 months. Mine redirected/diverted discharges to their treatment systems and sealing culverts. Non-compliance has been dramatically reduced for 2002.
6. Kemess (Northgate Exploration), British Columbia	66.7	Did not comply with MEQS for Cu for 1 month and TSM for 4 months.
7. Polaris (Cominco), Nunavut	100	
8. Cluff Lake (Cogema), Saskatchewan	100	
9. Key Lake (Cameco), Saskatchewan	100	
10. Konuto Lake (Hudson Bay Mining & Smelting), Saskatchewan	100	
11. McArthur River (Cameco), Saskatchewan	100	
12. McClean Lake (Cogema), Saskatchewan	100	
13. Rabbit Lake (Cameco), Saskatchewan	100	
14. Chisel North (Hudson Bay Mining & Smelting), Manitoba	100	
15. Stall/Snow Lake Mill (Hudson Bay Mining & Smelting), Manitoba	100	
16. Trout Lake (Hudson Bay Mining & Smelting), Manitoba	100	
17. Hoyle Pond (Kinross Gold), Ontario	N/A	No effluent discharged.
18. Lindsley (Falconbridge), Ontario	N/A	No effluent discharged.
19. Bousquet (Barrick), Québec	100	
20. Bouchard-Hébert (Cambior), Québec	100	
21. Francoeur (Richmont), Québec	100	
22. Gonzague Langlois (Cambior), Québec	100	
23. Joe Mann (Campbell Resources), Québec	100	
24. Katinniq-Raglan (Raglan), Québec	100	
25. Louvicourt (Novicourt), Québec	100	
26. Mouska (Cambior), Québec	91.7	Did not comply with MEQS for TSM for 1 month.
27. Niobec (Cambior), Québec	100	
28. Selbaie Mines (Gencor), Québec	100	
29. Troilus (Inmet), Québec	100	

Notes: Mines generally presented by location west to east.
N/A: not applicable.

Table 5: Summary of Performance by Mines Subject to the MMLEG in 2001

Mine Name (Company), Province	% Achievement with MEQS in 2001	Comments
1. Endako (Thompson Creek), British Columbia	Not assessed	Mine reported only TSM and pH.
2. Sullivan (Cominco), British Columbia	100	
3. Nanisivik (Breakwater), Nunavut	100	
4. Flin Flon Mill (Hudson Bay Mining & Smelting), Manitoba	100	
5. Thompson Mill (Inco), Manitoba	91.7	Did not achieve MEQS for Ni for 1 month.
6. Thompson Complex & Birchtree (Inco), Manitoba	100	
7. Birchtree (Inco), Manitoba	100	
8. Ruttan (Hudson Bay Mining & Smelting), Manitoba	100	
9. Tanco (Cabot), Manitoba	91.7	Did not achieve MEQS for TSM for 1 month.
10. Copper Cliff Wastewater Treatment Plant (Inco), Ontario	91.7	Did not achieve MEQS for Ni for 1 month and Cu for 1 month.
11. Nolin Creek Wastewater Treatment Plant (Inco), Ontario	83.3	Did not achieve MEQS for Ni for 2 months.
12. Crean Hill (Inco), Ontario	100	
13. Garson (Inco), Ontario	100	
14. Strathcona Moose Lake (Falconbridge), Ontario	100	
15. Lockerby (Falconbridge), Ontario	100	
16. Kidd Creek (Falconbridge), Ontario	100	
17. Horne (Noranda), Québec	100	
18. Lac Matagami (Noranda), Québec	100	
19. Lac Tio (QIT), Québec	91.7	Did not achieve MEQS for Cu for 1 month.
20. Mont-Wright (Québec Cartier), Québec	91.7	Did not achieve MEQS for TSM for 1 month.
21. Principale (Campbell Resources), Québec	100	
22. Brunswick (Noranda), New Brunswick	100	
23. Iron Ore Company of Canada (Iron Ore Company of Canada), Newfoundland	Not assessed	No TSM data reported.
24. Scully (Wabush), Newfoundland	91.7	Did not achieve MEQS for TSM for 1 month.

Notes: Mines presented by location west to east generally.
N/A: not applicable.

Data for Individual Mines

All mines that were subject to the MMLER and MMLEG in 2001 are listed in Tables 6-13.

The name of each mine, the name of the parent or managing company and the approximate location are listed in Column 1 of the tables. Company names have been abbreviated by omitting such words as "Mine," "Corporation," "Limited," etc. The full name of each mining company is provided in Appendix A.

Column 2 indicates effluent discharge points.

Data for average annual quality of effluents (or typical data where limited data are available) are provided in Column 3.

The effluent from a mining operation does not necessarily contain measurable concentrations of all of the prescribed deleterious substances. Metals commonly occur in ore as insoluble minerals. In the absence of acid mine water, low total concentrations of metals would be expected to occur in the effluent. To simplify the data, metal concentrations below 0.01 mg/L are not reported in the tables.

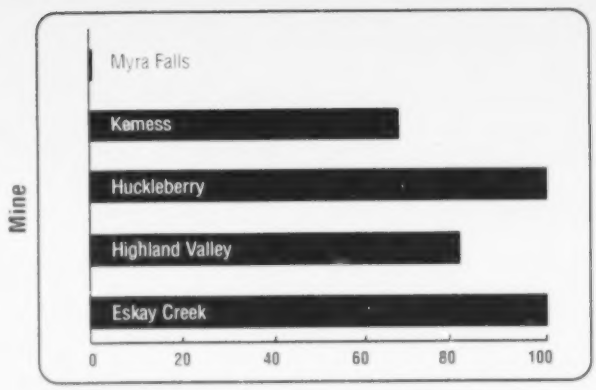
As the frequency of monitoring varies considerably from mine to mine, the data in Column 3 provide only a general view of the effluent quality. In some cases, the figures in Column 3 represent the average of monthly data, while in other cases, they represent the average of a limited number of samples. The comments in Column 4 indicate if the mine is subject to the regulations or to the associated guidelines and summarize its performance with respect to the MEQS in 2001. These comments are based on an examination of all data available to Environment Canada and not on the annual average shown in Column 3. For example, although the average annual concentration of zinc in a particular effluent might be 0.4 mg/L, effluent may have exceeded the maximum authorized monthly mean concentration of 0.5 mg/L in some months.

Summary of Performance by Region

Pacific and Yukon Region

In 2001, eight base metal mines were operating in the Pacific and Yukon Region, all of which were located in British Columbia. Six of these mines were subject to the MMLER, and two of them achieved 100% compliance with the MEQS (see Figure 3). One mine did not discharge effluent and was excluded from this performance assessment.

Figure 3: Performance of Mines Subject to the MMLER in the Pacific and Yukon Region in 2001



Two mines were subject to the MMLEG. One mine achieved 100% of the MEQS. The other mine was not assessed because metal concentrations were not available.

There were no operating metal mines in the Yukon in 2001.

Prairie and Northern Region

This region encompasses the provinces of Alberta, Saskatchewan and Manitoba, as well as the Northwest Territories and Nunavut.

In 2001, 15 mines were operating in this region: 10 base metal mines and five uranium mines. Of these mines, two were in Nunavut, six in Saskatchewan and seven in Manitoba.

Nine mines were subject to the MMLER, and all of these achieved 100% compliance with the MEQS (see Figure 4).

Six mines were subject to the MMLEG, and two of these did not achieve 100% of the MEQS (see Figure 5).

Ontario Region

In 2001, there were 14 base metal mines and one gold mine not using the cyanidation process operating in the Ontario Region. In addition, various effluents from eight mines were treated in two wastewater treatment plants at the Inco complex in Sudbury.

The two mines that were subject to the MMLER did not discharge effluent and were excluded from this performance assessment.

3.4 Data for Individual Mines

All mines that were subject to the MMLER and MMLEG in 2001 are listed in Tables 6-13.

The name of each mine, the name of the parent or managing company and the approximate location are listed in Column 1 of the tables. Company names have been abbreviated by omitting such words as "Mine," "Corporation," "Limited," etc. The full name of each mining company is provided in Appendix A.

Column 2 indicates effluent discharge points.

Data for average annual quality of effluents (or typical data where limited data are available) are provided in Column 3.

The effluent from a mining operation does not necessarily contain measurable concentrations of all of the prescribed deleterious substances. Metals commonly occur in ore as insoluble minerals. In the absence of acid mine water, low total concentrations of metals would be expected to occur in the effluent. To simplify the data, metal concentrations below 0.01 mg/L are not reported in the tables.

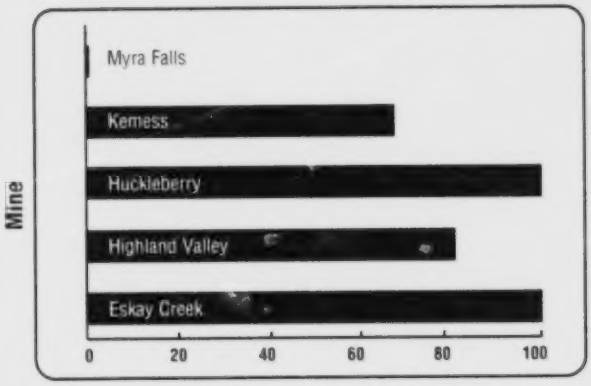
As the frequency of monitoring varies considerably from mine to mine, the data in Column 3 provide only a general view of the effluent quality. In some cases, the figures in Column 3 represent the average of monthly data, while in other cases, they represent the average of a limited number of samples. The comments in Column 4 indicate if the mine is subject to the regulations or to the associated guidelines and summarize its performance with respect to the MEQS in 2001. These comments are based on an examination of all data available to Environment Canada and not on the annual average shown in Column 3. For example, although the average annual concentration of zinc in a particular effluent might be 0.4 mg/L, effluent may have exceeded the maximum authorized monthly mean concentration of 0.5 mg/L in some months.

3.5 Summary of Performance by Region

3.5.1 Pacific and Yukon Region

In 2001, eight base metal mines were operating in the Pacific and Yukon Region, all of which were located in British Columbia. Six of these mines were subject to the MMLER, and two of them achieved 100% compliance with the MEQS (see Figure 3). One mine did not discharge effluent and was excluded from this performance assessment.

Figure 3: Performance of Mines Subject to the MMLER in the Pacific and Yukon Region in 2001



Two mines were subject to the MMLEG. One mine achieved 100% of the MEQS. The other mine was not assessed because metal concentrations were not available.

There were no operating metal mines in the Yukon in 2001.

3.5.2 Prairie and Northern Region

This region encompasses the provinces of Alberta, Saskatchewan and Manitoba, as well as the Northwest Territories and Nunavut.

In 2001, 15 mines were operating in this region: 10 base metal mines and five uranium mines. Of these mines, two were in Nunavut, six in Saskatchewan and seven in Manitoba.

Nine mines were subject to the MMLER, and all of these achieved 100% compliance with the MEQS (see Figure 4).

Six mines were subject to the MMLEG, and two of these did not achieve 100% of the MEQS (see Figure 5).

3.5.3 Ontario Region

In 2001, there were 14 base metal mines and one gold mine not using the cyanidation process operating in the Ontario Region. In addition, various effluents from eight mines were treated in two wastewater treatment plants at the Inco complex in Sudbury.

The two mines that were subject to the MMLER did not discharge effluent and were excluded from this performance assessment.

Twelve mines were subject to the MMLEG. The two Inco wastewater treatment plants did not achieve 100% of the MEQS (see Figure 6).

Figure 4: Performance of Mines Subject to the MMLER in the Prairie and Northern Region in 2001

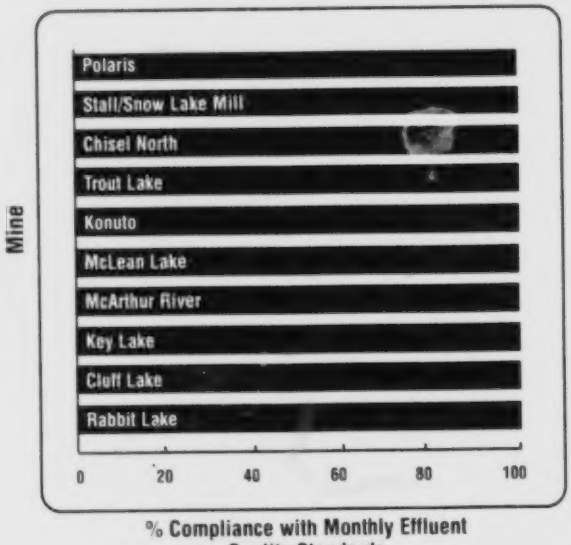


Figure 5: Performance of Mines Subject to the MMLEG in the Prairie and Northern Region in 2001

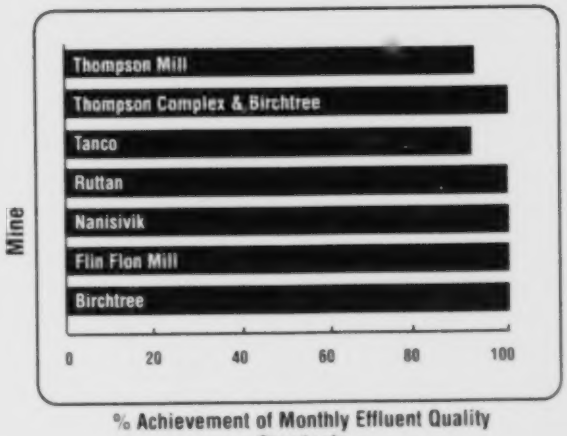
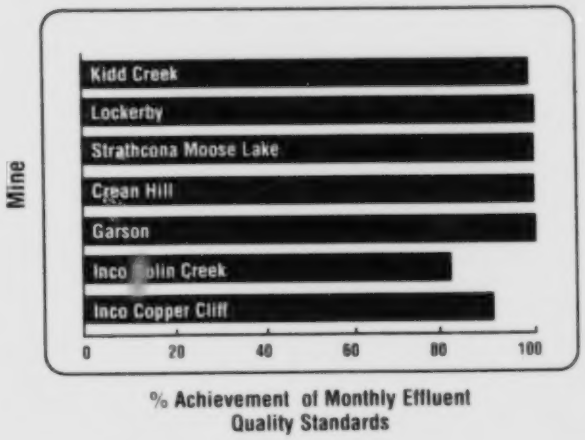


Figure 6: Performance of Mines Subject to the MMLEG in the Ontario Region in 2001



3.5.4 Québec Region

In 2001, there were eight base metal mines, six gold mines not using cyanidation and two iron ore mines operating in the Quebec Region.

Eleven mines were subject to the MMLER, and one of these did not achieve 100% of the MEQS (see Figure 7).

Five mines were subject to the MMLEG, and two of these did not achieve 100% of the MEQS (see Figure 8).

Figure 7: Performance of Mines Subject to the MMLER in the Quebec Region in 2001

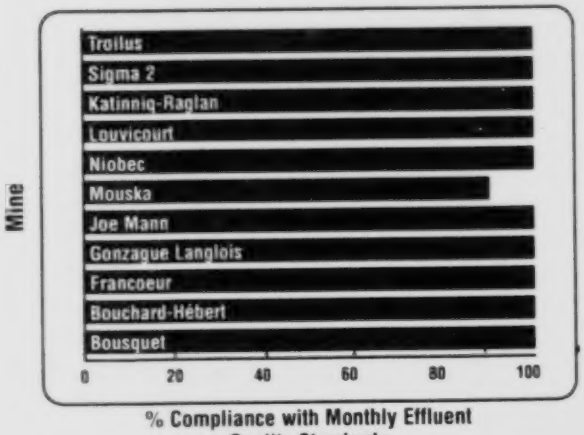
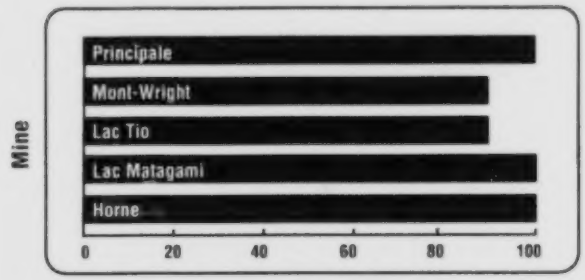


Figure 8: Performance of Mines Subject to the MMLEG in the Quebec Region in 2001



3.5.5 Atlantic Region

This region includes the provinces of New Brunswick, Nova Scotia, Prince Edward Island and Newfoundland and Labrador. In 2001, one base metal mine was operating in New Brunswick, and two iron ore mines were operating in Newfoundland and Labrador.

No mines were subject to the MMLER in 2001.

In 2001, three mines were subject to the MMLEG, and one of these achieved 100% of the MEQS (see Figure 9). One mine did not report TSM data and was excluded from this performance assessment.

Figure 9: Performance of Mines Subject to the MMLEG in the Atlantic Region in 2001

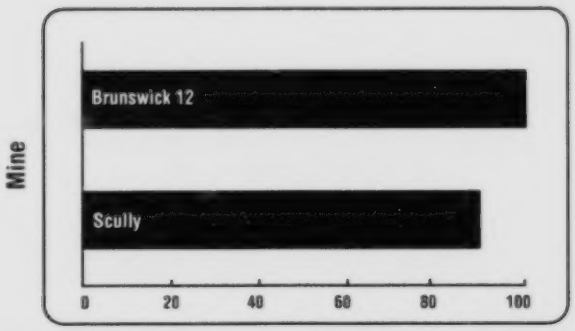


Table 6: Effluent Quality for Metal Mines in British Columbia in 2001

Mine Name (Company), Location	Discharge Point	Annual Average Quality of Effluent							Comments
		Metals and TSM in mg/L							
		As	Cu	Ni	Pb	Zn	TSM	pH	
1. Craigmont (Craigmont), Merritt	Adit Water	-	-	-	-	-	-	-	No Effluent Discharged.
2. Endako (Thompson Creek), Endako	#1 Pond 1A Dam Discharge	-	-	-	-	-	4	8.0	Performance not assessed.
	New East Dam Discharge	-	-	-	-	-	3	8.0	Performance not assessed.
	#2 Pond South Dam West Discharge	-	-	-	-	-	10	8.0	Performance not assessed.
	#1 Pond North Dam Discharge	-	-	-	-	-	3	8.1	Performance not assessed.
	South Boundary Creek Discharge	-	-	-	-	-	3	8.1	Performance not assessed.
3. Eskay Creek (Homestake), Stewart	D7	<0.01	0.01	0.04	0.06	0.08	11.5	7.9	Complied with all MEQS.
	W20	<0.01	<0.01	<0.01	0.01	0.01	3.3	7.7	Complied with all MEQS.
4. Highland Valley (Cominco), Logan Lake	Highmont Tailings	0.01	0.01	0.01	0.01	0.01	8.7	8.1	Above MEQS for TSM for 1 month.
	Bose Lake	0.01	<0.01	0.01	0.01	0.01	9.1	7.6	
	Trojan Creek	0.01	0.02	0.01	0.01	0.01	5.1	8.5	
	SRB Point	0.01	<0.01	0.01	0.01	0.01	7.0	7.9	Above MEQS for TSM for 1 month.
5. Huckleberry (Princeton), Houston	SC-02	<0.01	<0.01	-	<0.01	<0.01	<5	7.9	
	SC-03	<0.01	0.04	-	<0.01	<0.01	<5	7.9	
	SC-04	<0.01	<0.01	-	<0.01	0.01	<5	7.9	
	SC-05	<0.01	<0.01	-	<0.01	<0.01	<5	7.6	
	East Zone Ditch	-	-	-	-	-	6	7.4	
6. Kemess (Northgate Exploration), Smithers	WQ-14	<0.01	<0.01	<0.01	<0.01	<0.01	4	8.1	
	WQ-23	<0.01	<0.01	<0.01	<0.01	<0.01	6.7	7.8	Above MEQS for TSM for 1 month.
	WQ-BVR	<0.01	<0.01	<0.0	<0.01	<0.01	7	8.0	Above MEQS for TSM for 1 month.
	WQ-BXL	0.02	0.15	<0.01	0.02	0.14	5875	8.3	Above MEQS for Cu for 1 month and TSM for 2 months.
	WQ-SRP	<0.01	<0.01	<0.01	<0.01	<0.01	<3	8.2	

Table 6: Continued

Mine Name (Company), Location	Discharge Point	Annual Average Quality of Effluent Metals and TSM in mg/L							Comments
		As	Cu	Ni	Pb	Zn	TSM	pH	
7. **Myra Falls (Boliden Westmin), Campbell River**	3-Runoff	0.20	0.88	0.05	0.05	5.1	14.5	6.0	Above MEQS for Cu for 2 months, Zn for 2 months and pH for 1 month.
	4-Runoff	0.20	1.42	0.05	0.05	4.5	41	6.4	Above MEQS for Cu for 1 month, Zn for 1 month and TSM for 1 month.
	8-Runoff	0.20	0.20	0.05	0.05	1.95	8.7	6.3	Above MEQS for Cu for 1 month, Zn for 3 months and pH for 1 month.
	10A-Runoff	0.20	22.20	0.28	0.37	92.0	353	3.7	Above MEQS for Cu for 3 months, Ni for 1 month, Pb for 2 months, Zn for 3 months, TSM for 3 months and pH for 3 months.
	10B-Runoff	0.20	1.91	0.08	1.39	5.09	2760	6.4	Above MEQS for Cu, Pb, Zn and TSM for 1 month each.
	11A-Runoff (Myra Pond Discharge)	0.20	0.01	0.05	0.05	0.20	10.2	10.2	Above MEQS for Zn for 1 month.
	11B-Runoff	0.20	0.014	0.05	0.05	0.44	4.4	6.7	Above MEQS for Zn for 5 months.
	11C-Runoff	0.20	0.03	0.05	0.05	1.27	3.1	6.6	Above MEQS for Zn for 11 months.
	11D-Runoff	0.20	0.05	0.05	0.05	3.5	3.0	6.0	Above MEQS for Zn for 1 month.
	12-Seep	0.20	2.3	0.05	0.49	6.1	518	6.9	Above MEQS for Cu, Pb, Zn, TSM and pH for 1 month each.
	13A-Runoff	0.25	2.02	0.06	0.63	6.47	1042	7.3	Above MEQS for Cu, Pb, Zn and TSM for 6 months each.
	13B-Runoff	0.22	0.35	0.06	0.16	1.50	128	7.0	Above MEQS for Cu for 2 months, Pb for 2 months, Zn for 5 months and TSM for 5 months.
	13C-Seep	<0.20	0.15	<0.05	<0.05	0.66	33	6.6	Above MEQS for Zn for 2 months and TSM for 1 month.
	13D-Runoff	0.20	2.66	0.11	0.25	8.8	341	3.0	Above MEQS for Cu for 2 months, Pb for 1 month, Zn for 2 months, TSM for 2 months and pH for 2 months.
	14A-Seep	0.20	0.72	0.04	0.09	2.63	145	3.5	Above MEQS for Cu for 4 months, Zn for 5 months, TSM for 4 months and pH for 5 months.
	15A-Runoff	0.20	0.01	0.05	0.05	0.01	3.5	6.5	

Table 6: Continued

Mine Name (Company), Location	Discharge Point	Annual Average Quality of Effluent Metals and TSM in mg/L							Comments
		As	Cu	Ni	Pb	Zn	TSM	pH	
7. **Myra Falls (Boliden Westmin), Campbell River**	17A-Runoff	0.20	0.01	0.05	0.05	0.06	3.0	6.6	Above MEQS for pH for 1 month.
	19-Runoff	0.20	0.07	0.05	0.05	0.34	14	2.8	Above MEQS for pH for 1 month.
	19A-Runoff	0.20	0.04	0.05	0.04	0.66	5.9	6.5	Above MEQS for Zn for 3 months and TSM for 2 months.
	20-Seep	0.20	0.79	0.05	0.06	11.8	25.7	5.9	Above MEQS for Cu for 2 months, Zn for 3 months, TSM for 2 months and pH for 3 months.
	23-Seep	0.20	3.33	0.12	0.23	14.6	330	3.3	Above MEQS for Cu for 3 months, Pb for 1 month, Zn for 3 months, TSM for 3 months and pH for 3 months.
	25-Runoff	0.20	1.06	0.05	0.57	3.81	1987	6.9	Above MEQS for Cu for 1 month, Pb for 1 month, Zn for 2 months and TSM for 1 month.
	26-Seep	0.20	9.73	0.05	0.17	30.5	49	2.5	Above MEQS for Cu, Zn, TSM and pH for 1 month each.
	27-Seep	1.12	0.91	0.05	0.05	17.8	3.8	4.5	Above MEQS for As for 1 month, Cu for 5 months, Zn for 5 months and pH for 5 months.
8. **Sullivan (Cominco), Kimberley**	Kootenay	<0.01	0.01	-	0.02	0.20	2.8	9.3	Achieved all MEQS.

Table 7: Effluent Quality for Metal Mines in Nunavut in 2001

Mine Name (Company), Location	Discharge Point	Annual Average Quality of Effluent Metals and TSM in mg/L							Comments
		As	Cu	Ni	Pb	Zn	TSM	pH	
1. **Nanisivik (Breakwater), Nanisivik**	West Twin Lake Decant	-	-	-	0.08	0.04	1.7	7.9	
2. **Polaris (Cominco), Little Cornwallis Island**	Garrow Lake	<0.01	<0.01	<0.01	<0.01	0.15	<1	7.8	

Table 8: Effluent Quality for Metal Mines in Saskatchewan in 2001

Mine Name (Company), Location	Discharge Point	Annual Average Quality of Effluent							Comments
		Metals and TSM in mg/L							
		As	Cu	Ni	Pb	Zn	TSM	pH	
1. **Cluff Lake (Cogema), Cluff Lake**	Treated Effluent	<0.01	<0.01	0.01	<0.01	0.01	4.7	7.4	Ra-226: 0.86 pCi/L.
2. **Key Lake (Cameco), Key Lake**	Mill Treated Effluent	<0.01	0.01	0.03	0.01	0.01	1.9	6.3	Ra-226: 2.3 pCi/L Complied with all MEQS.
3. **Rabbit Lake (Cameco), Rabbit Lake**	Mill Treated Effluent. Station 2.3.3	0.03	<0.01	0.06	<0.01	0.01	1.5	7.2	Ra-226: 0.22 pCi/L Complied with all MEQS.
4. **McArthur River (Cameco), Key Lake**	Station 2.1	0.01	<0.01	<0.01	<0.01	0.02	1.5	7.4	Ra-226: 2.21 pCi/L Complied with all MEQS.
5. **McClean Lake (Cogema), Wollaston Lake**	SUE Water Treatment Plant Effluent to Sink Lake	0.03	<0.01	0.01	<0.01	<0.01	3.3	7.3	Ra-226: 0.86 pCi/L Complied with all MEQS.
	JEB Water Treatment Plant Effluent to Sink Lake	0.05	<0.01	0.04	<0.01	0.02	3.6	7.2	Ra-226: 1.97 pCi/L Complied with all MEQS.
6. **Konuto Lake (Hudson Bay Mining & Smelting), Konuto Lake**	Surface Sump Discharge	<0.01	0.07	0.01	0.04	0.09	7.3	7.8	Complied with all MEQS.

Table 9: Effluent Quality for Metal Mines in Manitoba in 2001

Mine Name (Company), Location	Discharge Point	Annual Average Quality of Effluent							Comments
		Metals and TSM in mg/L							
		As	Cu	Ni	Pb	Zn	TSM	pH	
1. **Flin Flon Mill (Hudson Bay Mining & Smelting), Flin Flon**	Tailings Pond North Weir	0.01	0.03	0.01	0.04	0.18	4	10.2	Achieved all MEQS.
Hudson Bay Mining & Smelting mines providing ore to Flin Flon Mill									
a. **Flin Flon Mine**		-	-	-	-	-	-	-	
b. **Trout Lake Mine**	Surface Settlement Sump Discharge	<0.01	0.03	0.04	0.04	0.08	6	9.3	Achieved all MEQS.
2. **Chisel North Mine (Hudson Bay Mining & Smelting), Snow Lake**	Treatment Plant Effluent	<0.01	0.01	0.01	<0.04	0.37	6	9.5	Achieved all MEQS.
3. **Stall/Snow Lake Mill (Hudson Bay Mining & Smelting), Snow Lake**	Anderson Lake Tailings Pond Discharge	<0.01	0.01	0.01	0.04	0.08	3	7.9	
4. **Ruttan Mine (Hudson Bay Mining & Smelting), Leaf Rapids**	Brehaut Lake Outfall	<0.01	0.01	0.01	0.04	0.14	2.3	7.4	
5. **Tanco (Cabot), Lac du Bonnet**	Tailings Pond Discharge	-	-	-	-	-	19.1	8.2	This is the former Bernic Lake Mine. Above MEQS for TSM for 1 month.
6. **Thompson Mill (Inco), Thompson**	Tailings Pond Discharge to Misery Lake	-	-	0.42	-	-	3	7.9	Above MEQS for Ni for 1 month.
Inco mines providing ore to Thompson Mill									
a. **Thompson Complex and Birchtree Mine**	T3 Culvert	-	-	0.21	-	-	3	7.6	
b. **Birchtree Mine**	Surface Runoff Swamp Stream LP #1	-	-	0.05	-	-	3	7.9	
	Effluent Treatment Plant LP #2	-	-	0.13	-	-	1	7.6	

Table 10: Effluent Quality for Metal Mines in Ontario in 2001

Mine Name (Company), Location	Discharge Point	Annual Average Quality of Effluent							Comments
		Metals and TSM in mg/L							
		As	Cu	Ni	Pb	Zn	TSM	pH	
1. Falconbridge Complex (Falconbridge), Sudbury									
a. The following mines provide ore for Strathcona Mill: Fraser Craig Lockerby		<0.01	0.02	0.08	<0.01	0.01	1.0	7.0	Achieved all MEQS.
b. Lockerby	Mine Water	<0.01	0.02	0.27	<0.01	0.01	0.90	6.9	Achieved all MEQS.
c. Thayer Lindsley									No effluent discharged.
2. Hoyle Pond (Kinross Gold), Timmins									No effluent discharged.
3. Inco Complex Sudbury	Copper Cliff Creek	<0.01	0.13	0.23	0.03	0.03	3.7	8.2	Above MEQS for Ni for 1 month and Cu for 1 month. This facility treats effluents from various operations listed below; 90% of effluent is recycled.
a. Frood-Stobie Mill Stobie Mine									
b. Clarabelle Mill Copper Cliff South Mine Creighton Mine Garson Mine McCreedy East Mine Copper Cliff North Mine Lower Coleman Mine									
c. Copper Cliff Mill	Nolin Creek	<0.01	0.06	0.32	0.02	0.01	3.7	8.3	Above MEQS for Ni for 2 months.
d. Crean Hill Mine		<0.01	0.01	0.23	0.03	0.03	4.0	8.2	Achieved all MEQS.
e. Garson Mine		<0.01	<0.01	0.10	0.03	0.04	3.4	7.5	Achieved all MEQS.
4. Kidd Creek (Falconbridge), Timmins	Tailings Pond Effluent	<0.01	0.01	<0.01	<0.01	0.20	0.8	7.3	Achieved all MEQS.

Table 11: Effluent Quality for Metal Mines in Quebec in 2001

Mine Name (Company), Location	Discharge Point	Annual Average Quality of Effluent							Comments
		Metals and TSM in mg/L							
		As	Cu	Ni	Pb	Zn	TSM	pH	
1. Bouchard-Hébert (Cambior), Rouyn-Noranda	Final Effluent	<0.01	0.04	0.06	0.01	0.19	6.9	7.8	
2. Bousquet #2 (Barrick), Preissac	Mine Water	<0.01	0.02	0.04	0.01	0.03	3.1	7.2	
3. Francoeur (Richmont), Rouyn-Noranda	Settling Pond	<0.01	0.02	0.06	0.01	0.01	8.0	7.8	
4. Gonzague Langlois (Cambior), Val-d'Or	Tailings Pond	<0.01	0.02	0.05	0.01	0.20	2.2	7.5	
	Ditch 3A	<0.01	0.01	0.02	0.01	0.10	3.3	7.3	
	Ditch 3C	0.01	0.01	0.03	0.01	0.02	2.5	7.3	
	Ditch 4	<0.01	0.02	0.02	0.01	0.33	3.9	7.5	
5. Horne (Noranda), Rouyn-Noranda	Tailings Pond Effluent (PI-06)	0.03	0.04	0.03	0.03	0.13	7.1	7.4	Achieved all MEQS.
	Tailings Pond (#12)	0.03	0.05	0.03	0.03	0.12	3.9	8.4	Achieved all MEQS.
6. Joe Mann (Campbell Resources), Chibougamau	Final Effluent	-	0.02	-	-	-	2.9	8.1	
7. Katinniq-Raglan (Raglan), Ungava Peninsula	DIR-UT	0.05	0.01	0.15	0.05	0.04	12.5	8.9	
	DIR-HS	0.01	0.01	0.38	0.01	0.01	3.1	8.5	
8. Lac Matagami (Noranda), Matagami	Final Effluent	0.05	0.02	0.01	0.02	0.12	3.6	8.5	
9. Lac Tio (QIT), Havre St-Pierre	Mine Water	0.02	0.13	0.27	0.02	0.04	10.3	7.7	Above MEQS for Cu for 1 month.
10. Louvicourt (Novicourt), Val-d'Or	Polishing Pond	0.01	0.03	0.05	0.01	0.03	6.7	7.8	
11. Mont-Wright (Québec Cartier), Fermont	Mine Water, Lake Hesse South, HS-1	<0.01	<0.01	<0.01	<0.01	0.01	6.5	7.2	
	Mine Water, Mont-Wright West, LW-1	<0.01	<0.01	<0.01	0.03	0.01	4	7.2	
	Mine Water, Mont Survie South, MS-2	<0.01	0.02	0.02	0.03	0.03	16.2	6.6	Above MEQS for TSM for 1 month.
12. Mouska (Cambior), Cadillac	Mine Water	<0.01	0.04	0.04	0.01	0.01	13.1	7.9	Above MEQS for TSM for 1 month.
13. Niobec (Cambior), St-Honoré	Mine Water	-	0.01	0.02	0.03	0.04	7.7	7.8	
	Tailings Pond	-	0.01	0.02	0.04	0.04	15.6	7.7	
14. Principale (Campbell Resources), Chibougamau	Effluent No. 2	-	0.04	-	-	-	2.2	7.6	
15. Les Mines Selbaie (Gencor), Joutel	Polishing Pond	0.03	0.03	0.03	0.03	0.21	2.5	9.1	
16. Troilus (Inmet), Chibougamau	Troilus PR-1	0.05	0.02	0.02	0.02	0.02	6.6	7.1	
	Troilus BS-2	0.05	0.03	0.03	0.03	0.03	6.6	7.8	

Table 12: Effluent Quality for Metal Mines in New Brunswick in 2001

Mine Name (Company), Location	Discharge Point	Annual Average Quality of Effluent							Comments
		Metals and TSM in mg/L							
		As	Cu	Ni	Pb	Zn	TSM	pH	
1. **Brunswick (Noranda), Bathurst**	Final Effluent	0.02	0.01	–	0.01	0.17	3.9	9.1	

Table 13: Effluent Quality for Metal Mines in Newfoundland in 2001

Mine Name (Company), Location	Discharge Point	Annual Average Quality of Effluent							Comments
		Metals and TSM in mg/L							
		As	Cu	Ni	Pb	Zn	TSM	pH	
1. **Iron Ore Company of Canada (Iron Ore Company of Canada), Labrador City**	New Tailings Pump House	0.02	0.03	0.02	0.05	0.01	–	7.8	No TSM data reported: not assessed.
	Old Tailings Pump House	0.2	0.03	0.02	0.05	0.01	–	7.9	No TSM data reported: not assessed.
2. **Scully (Wabush), Wabush**	East Pit No.1 Dewatering	–	–	–	–	–	1.2	7.5	
	East Pit No. 2 Settling Pond	–	–	–	–	–	1.5	7.1	
	West Pit No. 5	–	–	–	–	–	6.4	7.0	
	South Pit	–	–	–	–	–	6.5	7.3	Above MEQS for TSM for 1 month.

REFERENCES

Canada Gazette, *The Alice Arm Tailings Deposit Regulations*, SOR/79-345, Part II, Vol. 113, No. 8, Queen's Printer for Canada, Ottawa, Ontario (April 10, 1979).

Canada Gazette, Department of Fisheries and Oceans, *Metal Mining Effluent Regulations*, Part I, July 28, 2001, Queen's Printer for Canada, Ottawa, Ontario (2001).

Canada Gazette, Department of Fisheries and Oceans, *Metal Mining Effluent Regulations*, Part II, June 19, 2002, Queen's Printer for Canada, Ottawa, Ontario (2002).

Environment Canada, *Metal Mining Liquid Effluent Regulations and Guidelines* (includes *Metal Mining Liquid Effluent Regulations*, Guidelines for the Control of Liquid Effluents from Existing Mines, Guidelines for the Measurement of Acute Lethality in Liquid Effluents from Metal Mines, Explanatory Notes and Environmental Code of Practice for Mines), Water Pollution Control Directorate, Ottawa, Ontario, Report EPS 1-WP-77-1 (1977).

Environment Canada, *Status Report on Water Pollution Control in the Canadian Metal Mining Industry 1982*, Conservation and Protection, Ottawa, Ontario, Report EPS 1/MM/2 (1985).

Environment Canada, *Mine and Mill Wastewater Treatment*, Conservation and Protection, Ottawa, Ontario, Report EPS 2/MM/3 (1987).

Environment Canada, *Status Report on Water Pollution Control in the Canadian Metal Mining Industry 1986*, Conservation and Protection, Ottawa, Ontario, Report EPS 1/MM/3 (1988).

Environment Canada, *Gold Mining Effluent Treatment Seminars*, Mississauga, Ontario (1989).

Environment Canada, *Biological Test Method: Reference Method for Determining Acute Lethality of Effluents to Rainbow Trout*, Second Edition, Report EPS 1/RM/13 (December 2000).

Environment Canada, *Status Report on Water Pollution Control in the Canadian Metal Mining Industry 1990 and 1991*, Conservation and Protection, Ottawa, Ontario, Report EPS 1/MM/4 (1992).

Environment Canada, *Status Report on Water Pollution Control in the Canadian Metal Mining Industry 1994*, Conservation and Protection, Ottawa, Ontario, Report EPS 1/MM/5 (1997).

Environment Canada, *Status Report on Water Pollution Control in the Canadian Metal Mining Industry 1998*, Conservation and Protection, Ottawa, Ontario, Report EPS 1/MM/6 (2001).

Environment Canada, *Status Report on Water Pollution Prevention and Control in the Canadian Metal Mining Industry 1999—2000*, Conservation and Protection, Ottawa, Ontario, Report EPS 1/MM/9 (2002).

Government of Canada, *Consolidated Regulations of Canada 1978, Chapter 819—Metal Mining Liquid Effluent Regulations*, Queen's Printer for Canada, Ottawa, Ontario (1978).

SENES Consultants Limited, *Report on Technologies Applicable to Management of Canadian Mining Effluents*, prepared for Environment Canada (March 1999).

APPENDIX A: MINING COMPANIES INCLUDED IN THE ASSESSMENT

Barrick Gold Corporation
Black Hawk Mining Inc.
Boliden Westmin (Canada) Ltd.
Breakwater Resources Ltd.
Cabot Corporation
Cambior Inc.
Cameco Corporation
Campbell Resources Inc.
Cogema Resources Inc.
Cominco Ltd.
Craigmont Mines Ltd.
Falconbridge Ltd.
Gencor Ltd.
Homestake Canada Inc.
Hudson Bay Mining & Smelting Co. Ltd.
Inco Ltd.
Inmet Mining Corporation
Iron Ore Company of Canada
Kinross Gold Corporation
McWatters Mining Inc.
Noranda Inc.
Northgate Exploration Ltd.
Novicourt Inc.
Prime Resources Group Inc.
Princeton Mining Corporation
QIT-Fer et Titane Inc.
Québec Cartier Mining Co.
Richmont Mines Inc.
Société Minière Raglan du Québec
Teck Corporation
Thompson Creek Mining Co.
Wabush Mines
Western Québec Mines Inc.

APPENDIX B: MINE EFFLUENT QUALITY COMPLIANCE, CONFORMANCE AND EXCEEDANCES FOR 2001

Note to Readers

The tables presented in this appendix summarize the effluent quality data for mines subject to the MMLER and MMLEG in 2001. The summaries include site identification (i.e., mine/mill name and effluent discharge name), percentage of monthly effluent quality data meeting the prescribed limits or performance objectives, the total number of monthly averages, the number of monthly averages that exceeded at least one limit for a given month, and the distribution of the non-compliant parameters. The parameters included are total suspended matter (TSM), arsenic (As), copper (Cu), nickel (Ni), lead (Pb), zinc (Zn), total radium-226 (Ra-226) and pH.

Table B1: Performance Summary for Mines Subject to MMLER in 2001

Metal Mining Liquid Effluent Regulations (MMLER)

2001 Monthly Average Data Quality of Mining Effluents

Site Identification														
Company Name	Mine/Mill Name	Effluent Discharge Name	Monthly Quality %	Number of Monthly Averages	Number of Monthly Exceedances	TSM **25.0** mg/L	As **0.5** mg/L	Cu **0.3** mg/L	Ni **0.5** mg/L	Pb **0.2** mg/L	Zn **0.5 mg/L**	Ra-226 T **10.0** p Ci/L	pH **6**
CAMBIOR INC	Bouchard-Hebert	Final Effluent	100	12	0								
BARRICK GOLD CORPORATION	Bousquet #2	Mine Water	100	12	0								
COGEMA RESOURCES INC	Cluff Lake	Treated Effluent	100	12	0								
CRAIGMONT MINES LTD	Craigmont	Adit Water	No effluent discharge										
PRIME RESOURCES GROUP INC	Eskay Creek	D7	100	12	0								
PRIME RESOURCES GROUP INC	Eskay Creek	W20	100	12	0								
RICHMONT MINES INC	Francoeur	Settling Pond Discharge	100	12	0								
CAMBIOR INC	Gonzague Langlois	Pond	100	12	0								
CAMBIOR INC	Gonzague Langlois	Ditch 3A	100	12	0								
CAMBIOR INC	Gonzague Langlois	Ditch 3C	100	12	0								
CAMBIOR INC	Gonzague Langlois	Ditch 4	100	12	0								
COMINCO LTD	Highland Valley Copper	Boss Lake Disharge	100	12	0								
COMINCO LTD	Highland Valley Copper	Trojan Creek Discharge	100	12	0								
PRINCETON MINING CORPORATION	Huckleberry	SC-02	100	12	0								
PRINCETON MINING CORPORATION	Huckleberry	SC-03	100	12	0								
PRINCETON MINING CORPORATION	Huckleberry	SC-04	100	12	0								
PRINCETON MINING CORPORATION	Huckleberry	SC-05	100	12	0								
PRINCETON MINING CORPORATION	Huckleberry	East Zone	100	12	0								
CAMPBELL RESOURCES INC	Joe Mann	Final Effluent	100	12	0								
SOCIETE MINIERE RAGLAN DU QUEBEC	Katinniq	DIR-UT	100	12	0								
SOCIETE MINIERE RAGLAN DU QUEBEC	Katinniq	DIR-HS	100	12	0								
NORTHGATE EXPLORATION LTD	Kemess	WQ-14	100	12	0								
NORTHGATE EXPLORATION LTD	Kemess	WQ-SRP	100	12	0								
CAMECO CORPORATION	Key Lake	Treated Mill Effluent	100	12	0								
HUDSON BAY MINING AND SMELTING CO., LTD	Konuto		100	12	0								
GENCOR LTD	Les Mines Selbaie	Polishing Pond Discharge	100	12	0								
NOVICOURT INC	Louvicourt	Polishing Pond Discharge	100	12	0								
CAMECO CORPORATION	McArthur River		100	12	0								
COGEMA RESOURCES INC	McClean Lake	JEB WTP Effluent	100	12	0								
COGEMA RESOURCES INC	McClean Lake	SUE WTP Effluent	100	12	0								
BOLIDEN WESTMIN (Canada) LTD	Myra Falls Operations	15A-Runoff	100	12	0								
CAMBIOR INC	Niobec	Mine Water	100	12	0								
CAMBIOR INC	Niobec	Tailings Pond Discharge	100	12	0								

Note: Performance percentages are based on effluent discharge points.

Table B1: Performance Summary for Mines Subject to MMLER in 2001 (Cont'd)

Metal Mining Liquid Effluent Regulations (MMLER)

2001 Monthly Average Data Quality of Mining Effluents

Site Identification			Monthly Quality %	Number of Monthly Averages	Number of Monthly Exceedances	TSM **25.0** mg/L	As **0.5** mg/L	Cu **0.3** mg/L	Ni **0.5** mg/L	Pb **0.2** mg/L	Zn **0.5** mg/L	Ra-226 T **10.0** p Ci/L	pH **6**
Company Name	**Mine/Mill Name**	**Effluent Discharge Name**											
COMINCO LTD.	Polaris	Sample Station 262-7	100	12	0								
CAMECO CORPORATION	Rabbit Lake	Treated Mill Effluent	100	12	0								
INMET MINING CORPORATION	Troilus	BS-2	100	12	0								
INMET MINING CORPORATION	Troilus	PR-1	100	12	0								
HUDSON BAY MINING AND SMELTING CO., LTD.	Trout Lake	Treatment Plant Discharge	100	12	0								
COMINCO LTD.	Highland Valley Copper	SRB Point of Discharge at Logging Road	91	12	1	1							
COMINCO LTD.	Highland Valley Copper	Highmont Tailings South Seepage Pond	91	12	1	1							
NORTHGATE EXPLORATION LTD.	Kemess	WQ-23	91	12	1	1							
NORTHGATE EXPLORATION LTD.	Kemess	WQ-BVR	91	12	1	1							
CAMBIOR INC.	Mouska	Mine Water	91	12	1	1							
BOLIDEN WESTMIN (Canada) LTD.	Myra Falls Operations	4-Runoff	91	12	3	1		1			1		
BOLIDEN WESTMIN (Canada) LTD.	Myra Falls Operations	10B-Runoff	91	12	4	1		1		1	1		
BOLIDEN WESTMIN (Canada) LTD.	Myra Falls Operations	11A-Runoff	91	12	1						1		
BOLIDEN WESTMIN (Canada) LTD.	Myra Falls Operations	11D-Runoff	91	12	1						1		
BOLIDEN WESTMIN (Canada) LTD.	Myra Falls Operations	12-Seep	91	12	4	1		1		1	1		
BOLIDEN WESTMIN (Canada) LTD.	Myra Falls Operations	17A-Runoff	91	12	1								
BOLIDEN WESTMIN (Canada) LTD.	Myra Falls Operations	19-Runoff	91	12	1								
BOLIDEN WESTMIN (Canada) LTD.	Myra Falls Operations	26 Seep	91	12	4	1		1			1		
NORTHGATE EXPLORATION LTD.	Kemess	WQ-BXL	83	12	3	2		1					
BOLIDEN WESTMIN (Canada) LTD.	Myra Falls Operations	3-Runoff	83	12	5			2			2		
BOLIDEN WESTMIN (Canada) LTD.	Myra Falls Operations	13C-Seep	83	12	4	1					2		
BOLIDEN WESTMIN (Canada) LTD.	Myra Falls Operations	13D-Runoff	83	12	9	2		2		1	2		
BOLIDEN WESTMIN (Canada) LTD.	Myra Falls Operations	25-Runoff	83	12	6	2		1		1	2		
BOLIDEN WESTMIN (Canada) LTD.	Myra Falls Operations	8-Runoff	75	12	5			1			3		
BOLIDEN WESTMIN (Canada) LTD.	Myra Falls Operations	10A-Runoff	75	12	15	3		3	1	2	3		
BOLIDEN WESTMIN (Canada) LTD.	Myra Falls Operations	23-Seep	75	12	13	3		3		1	3		
BOLIDEN WESTMIN (Canada) LTD.	Myra Falls Operations	11B-Runoff	66	12	4						4		
BOLIDEN WESTMIN (Canada) LTD.	Myra Falls Operations	19A-Runoff	66	12	5	2					3		
BOLIDEN WESTMIN (Canada) LTD.	Myra Falls Operations	20-Seep	66	12	11	2		2			4		
BOLIDEN WESTMIN (Canada) LTD.	Myra Falls Operations	14A-Seep	58	12	18	4		4			5		
BOLIDEN WESTMIN (Canada) LTD.	Myra Falls Operations	27-Seep	58	12	16		1	5			5		
BOLIDEN WESTMIN (Canada) LTD.	Myra Falls Operations	13A-Runoff	50	12	24	6		6		6	6		
BOLIDEN WESTMIN (Canada) LTD.	Myra Falls Operations	13B-Runoff	41	12	14	5		2		2	5		
BOLIDEN WESTMIN (Canada) LTD.	Myra Falls Operations	11C-Runoff	8	12	11						11		
	Effluents - Regulations		90.15	792	187	41	1	36	1	15	66		

Note: Performance percentages are based on effluent discharge points.

Table B2: Performance Summary for Mines Subject to MMLEG in 2001

Metal Mining Liquid Effluent Guidelines (MMLEG)

2001 Monthly Average Data Quality of Mining Effluents

Site Identification						TSM	As	Cu	Ni	Pb	Zn	Ra-226	pH
Company Name	Mine/Mill Name	Effluent Discharge Name	Monthly Quality %	Number of Monthly Averages	Number of Monthly Exceedances	25.0 mg/L	0.5 mg/L	0.3 mg/L	0.5 mg/L	0.2 mg/L	0.5 mg/L	10.0 p Ci/L	6
INCO LIMITED	Birchtree	LP#1	100	12	0								
INCO LIMITED	Birchtree	LP#2	100	12	0								
NORANDA MINING AND EXPLORATION INC.	Brunswick #12	Final Effluent	100	12	0								
IRON ORE COMPANY OF CANADA	Carol	New Tailings Pump House				Not assessed							
IRON ORE COMPANY OF CANADA	Carol	Old Tailings Pump House				Not assessed							
HUDSON BAY MINING AND SMELTING CO., LTD.	Chisel North	Treatment Plant Effluent	100	12	0								
INCO LIMITED	Crean Hill		100	12	0								
THOMPSON CREEK MINING LTD.	Endako	New East Dam Discharge				Not assessed							
THOMPSON CREEK MINING LTD.	Endako	South Boundary Creek Discharge				Not assessed							
THOMPSON CREEK MINING LTD.	Endako	#1 Pond North Dam Discharge				Not assessed							
THOMPSON CREEK MINING LTD.	Endako	#1 Pond 1A Dam Discharge				Not assessed							
THOMPSON CREEK MINING LTD.	Endako	#2 Pond South Dam West Discharge				Not assessed							
HUDSON BAY MINING AND SMELTING CO., LTD.	Flin Flon Mill	Tailings Pond North Weir	100	12	0								
INCO LIMITED	Garson		100	12	0								
NORANDA MINING AND EXPLORATION INC.	Horne Division	PI-06	100	12	0								
NORANDA MINING AND EXPLORATION INC.	Horne Division	#12	100	12	0								
FALCONBRIDGE LTD.	Kidd Creek		100	12	0								
NORANDA MINING AND EXPLORATION INC.	Lac Matagami	Final Effluent	100	12	0								
FALCONBRIDGE LTD.	Lockerby		100	12	0								
QUEBEC CARTIER MINING COMPANY	Mont-Wright	HS-1	100	12	0								
QUEBEC CARTIER MINING COMPANY	Mont-Wright	LW-1	100	12	0								
BREAKWATER RESOURCES LTD.	Nanisivik	West Twin Lake Decant	100	12	0								
CAMPBELL RESOURCES INC.	Principale	Effluent No. 2	100	12	0								
HUDSON BAY MINING AND SMELTING CO., LTD.	Ruttan	Brehaut Lake Outfall	100	12	0								
WABUSH MINES	Scully	East Pit No. 1	100	12	0								
WABUSH MINES	Scully	East Pit No. 2	100	12	0								
WABUSH MINES	Scully	West Pit No. 5	100	12	0								
HUDSON BAY MINING AND SMELTING CO., LTD.	Stall/Snow Lake Mill	Treatment Plant Effluent	100	12	0								
FALCONBRIDGE LTD.	Strathcona (Moose Lake)		100	12	0								
COMINCO LTD.	Sullivan	Kootenay	100	12	0								
INCO LIMITED	Thompson Cplx & Birchtree	T3 Culvert	100	12	0								
INCO LIMITED	Copper Cliff Treatment Plant		91	12	2			1	1				
QIT FER ET TITANE INC.	Lac Tio	Mine Water	91	12	1			1					
QUEBEC CARTIER MINING COMPANY	Mont-Wright	MS-2	91	12	1	1							
WABUSH MINES	Scully	South Pit	91	12	1	1							
CABOT CORPORATION	Tanco	Tailings Pond Discharge	91	12	1	1							
INCO LIMITED	Thompson Mill	Tailings Pond Discharge	91	12	1				1				
INCO LIMITED	Nolin Creek Treatment Plant		83	12	2				2				
	Effluents - Guidelines		97.85	372	9	3		2	4				

Note: Performance percentages are based on effluent discharge points.

APPENDIX C: MINE MONTHLY AVERAGE EFFLUENT QUALITY DATA

Note to Readers

The tables presented in this appendix show the monthly average sample concentrations for each mining effluent. Supporting information includes:

- Mine/Mill Name
- Company Name
- Mine Operator Name
- Location
  - City
  - Province
  - Region
  - Site Coordinates (latitude and longitude)
- Mining Sector
  - Precious Metals
  - Base Metals
  - Uranium
  - Iron Ore
- Mine Product(s)
- Regulatory Status (subject to MMLER or MMLEG)
- Identification of Effluent Discharge Point
- Comments (if applicable)
- Parameter Limits
- Monthly Average Concentrations

Highlighted data indicate that a Monthly Effluent Quality Standard (MEQS) is exceeded for a given month. Tables are sorted in alphabetical order based on mine/mill name.

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	**Birchtree**
Company Name	**INCO LIMITED**
Operator Name	**INCO Limited**
City	**Thompson**
Province	**Manitoba**
Region	**Prairie and Northern**
Latitude/Longitude	**55° 42' N / 97° 55' W**
Sector	**Base Metals**
Product	**Nickel-Copper**
Regulatory Status	**Guidelines**
Effluent Discharge Point	**LP#1**
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/month)	–	0	0	0	96 768	499 968	103 680	53 568	44 640	25 920	13 392	34 560	0
TSM	(mg/L)	25.0	–	–	–	2.000	4.000	2.000	2.000	2.000	6.000	3.000	2.000	–
As	(mg/L)	0.5	–	–	–	–	–	–	–	–	–	–	–	–
Cu	(mg/L)	0.3	–	–	–	–	–	–	–	–	–	–	–	–
Ni	(mg/L)	0.5	–	–	–	0.100	0.050	0.030	0.030	0.030	0.040	0.060	0.080	–
Pb	(mg/L)	0.2	–	–	–	–	–	–	–	–	–	–	–	–
Zn	(mg/L)	0.5	–	–	–	–	–	–	–	–	–	–	–	–
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	–	–	–	7.1	7.3	7.9	8.2	8.6	8.5	8.2	7.7	–

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	**Birchtree**
Company Name	**INCO LIMITED**
Operator Name	**INCO Limited**
City	**Thompson**
Province	**Manitoba**
Region	**Prairie and Northern**
Latitude/Longitude	**55° 42' N / 97° 55' W**
Sector	**Base Metals**
Product	**Nickel-Copper**
Regulatory Status	**Guidelines**
Effluent Discharge Point	**LP#2**
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/month)	–	16 238	14 655	22 767	26 778	30 780	26 494	22 124	20 035	22 642	23 293	18 109	16 883
TSM	(mg/L)	25.0	1.000	1.000	1.000	1.000	2.000	1.000	1.000	3.000	1.000	1.000	2.000	1.000
As	(mg/L)	0.5	–	–	–	–	–	–	–	–	–	–	–	–
Cu	(mg/L)	0.3	–	–	–	–	–	–	–	–	–	–	–	–
Ni	(mg/L)	0.5	0.200	0.130	0.340	0.040	0.070	0.100	0.120	0.100	0.080	0.160	0.120	0.130
Pb	(mg/L)	0.2	–	–	–	–	–	–	–	–	–	–	–	–
Zn	(mg/L)	0.5	–	–	–	–	–	–	–	–	–	–	–	–
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	7.4	7.9	7.4	7.7	7.6	7.5	7.6	7.7	7.7	7.6	7.6	7.4

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	**Bouchard-Hébert**
Company Name	**CAMBIOR INC.**
Operator Name	**Cambior Inc.**
City	**30 km North-East of Rouyn-Noranda**
Province	**Québec**
Region	**Québec**
Latitude/Longitude	**48° 23' N / 78° 54' W**
Sector	**Base Metals**
Product	**Zinc-Copper-Gold-Silver**
Regulatory Status	**Regulations**
Effluent Discharge Point	**Final Effluent**
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/day)	–	0	0	0	6 206	0	10 523	12 064	11 520	9 754	1 944	1 602	1 048
TSM	(mg/L)	25.0	–	–	–	12.800	–	9.700	7.400	6.100	4.700	8.500	2.600	3.800
As	(mg/L)	0.5	–	–	–	–	–	0.002	–	–	0.003	–	–	–
Cu	(mg/L)	0.3	–	–	–	0.030	–	0.040	0.030	0.030	0.040	0.030	0.030	0.090
Ni	(mg/L)	0.5	–	–	–	–	–	0.070	–	–	0.050	–	–	–
Pb	(mg/L)	0.2	–	–	–	–	–	–	–	–	–	–	0.010	–
Zn	(mg/L)	0.5	–	–	–	0.430	–	0.300	0.050	0.060	0.080	0.143	0.200	0.250
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	–	–	–	7.4	–	8.0	7.9	8.3	6.8	8.1	8.1	7.7

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	**Bousquet #2**
Company Name	**BARRICK GOLD CORPORATION**
Operator Name	**Barrick Gold Corporation**
City	**Preissac**
Province	**Québec**
Region	**Québec**
Latitude/Longitude	**48° 15' N / 78° 29' W**
Sector	**Precious Metals**
Product	**Gold-Copper**
Regulatory Status	**Regulations**
Effluent Discharge Point	**Mine Water**
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/day)	–	0	0	0	1 712	767	180	165	12	236	614	608	762
TSM	(mg/L)	25.0	–	–	–	9.000	3.000	2.100	2.000	3.000	3.000	4.000	2.000	1.700
As	(mg/L)	0.5	–	–	–	0.002	0.002	0.002	0.002	0.003	0.020	0.002	0.002	0.002
Cu	(mg/L)	0.3	–	–	–	0.020	0.020	0.020	0.020	0.030	0.020	0.020	0.010	0.010
Ni	(mg/L)	0.5	–	–	–	0.050	0.040	0.030	0.050	0.050	0.050	0.040	0.040	0.040
Pb	(mg/L)	0.2	–	–	–	0.010	0.010	0.020	0.010	0.020	0.020	0.010	0.010	0.010
Zn	(mg/L)	0.5	–	–	–	0.030	0.030	0.040	0.020	0.040	0.040	0.030	0.030	0.030
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	–	–	–	7.3	7.3	7.3	7.3	7.1	7.0	7.3	7.5	7.0

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	**Brunswick#12**
Company Name	**NORANDA MINING AND EXPLORATION INC.**
Operator Name	**Noranda Mining & Exploration Inc.**
City	**Bathurst**
Province	**New Brunswick**
Region	**Atlantic**
Latitude/Longitude	**47° 28' N / 65° 53' W**
Sector	**Base Metals**
Product	**Lead-Zinc-Copper-Silver**
Regulatory Status	**Guidelines**
Effluent Discharge Point	**Final Effluent**
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/month)	–	826 000	660 000	785 000	1 605 000	1 600 000	1 338 787	1 180 000	1 200 000	779 000	1 001 000	754 000	800 000
TSM	(mg/L)	25.0	2.500	2.800	2.700	3.500	2.800	3.000	5.700	2.100	5.900	7.100	5.600	3.200
As	(mg/L)	0.5	–	–	–	–	–	–	0.020	0.020	0.020	–	–	–
Cu	(mg/L)	0.3	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010
Ni	(mg/L)	0.5	–	–	–	–	–	–	–	–	–	–	–	–
Pb	(mg/L)	0.2	–	0.010	0.010	0.010	0.010	0.010	–	0.010	0.010	0.010	–	–
Zn	(mg/L)	0.5	0.200	0.180	0.190	0.210	0.230	0.170	0.200	0.120	0.100	0.210	0.130	0.140
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	9.2	9.1	9.1	9.0	9.2	9.2	9.4	8.6	9.2	9.2	9.0	8.7

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	**Carol**
Company Name	**IRON ORE COMPANY OF CANADA**
Operator Name	**Iron Ore Company of Canada**
City	**Labrador City**
Province	**Newfoundland**
Region	**Atlantic**
Latitude/Longitude	**53° 04' N / 66° 57' W**
Sector	**Iron**
Product	**Iron**
Regulatory Status	**Guidelines**
Effluent Discharge Point	**New Tailings Pump House**
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/month)	–	–	–	–	–	–	–	–	–	–	–	–	–
TSM	(mg/L)	25.0	–	–	–	–	–	–	–	–	–	–	–	–
As	(mg/L)	0.5	0.020	–	0.020	0.020	0.020	–	0.020	–	–	0.020	0.020	0.020
Cu	(mg/L)	0.3	0.060	–	0.055	0.020	0.005	–	0.005	–	–	0.035	0.031	0.038
Ni	(mg/L)	0.5	0.020	–	0.020	0.020	0.020	–	0.020	–	–	0.020	0.020	0.020
Pb	(mg/L)	0.2	0.005	–	0.005	0.005	0.005	–	0.005	–	–	0.005	0.005	0.005
Zn	(mg/L)	0.5	0.005	–	0.017	0.005	0.005	–	0.005	–	–	0.005	0.019	0.011
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	6.5	–	7.8	8.1	8.0	–	8.0	–	–	8.0	8.0	8.0

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	**Carol**
Company Name	**IRON ORE COMPANY OF CANADA**
Operator Name	**Iron Ore Company of Canada**
City	**Labrador City**
Province	**Newfoundland**
Region	**Atlantic**
Latitude/Longitude	**53° 04' N / 66° 57' W**
Sector	**Iron**
Product	**Iron**
Regulatory Status	**Guidelines**
Effluent Discharge Point	**Old Tailings Pump House**
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/month)	–	–	–	–	–	–	–	–	–	–	–	–	–
TSM	(mg/L)	25.0	–	–	–	–	–	–	–	–	–	–	–	–
As	(mg/L)	0.5	0.200	–	0.200	0.200	0.100	–	0.200	–	–	0.200	0.200	0.200
Cu	(mg/L)	0.3	0.050	–	0.060	0.070	0.025	–	0.005	–	–	0.005	0.027	0.031
Ni	(mg/L)	0.5	0.020	–	0.020	0.020	0.020	–	0.020	–	–	0.020	0.020	0.020
Pb	(mg/L)	0.2	0.050	–	0.050	0.050	0.050	–	0.050	–	–	0.050	0.050	0.050
Zn	(mg/L)	0.5	0.008	–	0.008	0.005	0.005	–	0.005	–	–	0.005	0.062	0.019
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	7.3	–	8.0	8.0	8.0	–	8.0	–	–	8.0	8.0	8.0

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	**Chisel North**
Company Name	**HUDSON BAY MINING AND SMELTING CO., LTD.**
Operator Name	**Hudson Bay Mining and Smelting Co. Ltd.**
City	**Snow Lake**
Province	**Manitoba**
Region	**Prairie and Northern**
Latitude/Longitude	
Sector	**Base Metals**
Product	**Zinc**
Regulatory Status	**Guidelines**
Effluent Discharge Point	**Treatment Plant Effluent**
Comments	**No processing in Chisel North. Ore is trucked to Stall/Snow Lake Mill for processing.**

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/month)	–	63 350	57 250	0	41 700	71 800	85 800	97 950	95 900	96 300	80 600	79 350	82 000
TSM	(mg/L)	25.0	15.000	25.000	–	5.000	2.000	3.000	2.000	3.000	4.000	2.000	2.000	1.000
As	(mg/L)	0.5	0.002	0.002	–	0.002	0.005	0.002	0.002	0.002	0.002	0.001	0.004	0.001
Cu	(mg/L)	0.3	0.020	0.010	–	0.010	0.010	0.010	0.010	0.010	0.030	0.010	0.020	0.010
Ni	(mg/L)	0.5	0.010	0.010	–	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010
Pb	(mg/L)	0.2	0.040	0.040	–	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040
Zn	(mg/L)	0.5	0.490	0.480	–	0.390	0.150	0.390	0.270	0.410	0.420	0.470	0.280	0.300
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	7.7	9.0	–	10.0	10.1	9.6	9.6	9.6	9.5	9.6	9.9	10.1

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	**Cluff Lake**
Company Name	**COGEMA RESOURCES INC.**
Operator Name	**Cogema Resources Inc.**
City	**Saskatoon**
Province	**Saskatchewan**
Region	**Prairie and Northern**
Latitude/Longitude	**58° 23' N / 109° 32' W**
Sector	**Uranium**
Product	**Uranium**
Regulatory Status	**Regulations**
Effluent Discharge Point	**Treated Effluent**
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/month)	–	38 000	37 000	80 000	83 000	103 000	42 000	60 000	120 000	143 000	50 000	0	0
TSM	(mg/L)	25.0	2.400	2.500	4.375	3.600	3.200	5.500	7.000	6.750	6.340	5.340	–	–
As	(mg/L)	0.5	0.026	0.002	0.045	0.058	0.051	–	0.041	0.012	0.016	0.011	–	–
Cu	(mg/L)	0.3	0.002	0.002	0.003	0.002	0.001	–	0.001	0.001	0.003	0.003	–	–
Ni	(mg/L)	0.5	0.059	0.081	0.097	0.093	0.057	–	0.051	0.080	0.104	0.170	–	–
Pb	(mg/L)	0.2	0.002	0.002	0.002	0.002	0.003	–	0.002	0.002	0.002	0.002	–	–
Zn	(mg/L)	0.5	0.011	0.007	0.005	0.005	0.005	–	0.005	0.005	0.021	0.006	–	–
Ra-226	(pCi/L)	10.0	0.860	0.770	1.160	1.4	0.390	0.540	0.670	0.470	0.990	0.630	–	–
pH		>6.0	7.7	7.3	7.2	7.3	7.3	7.6	7.5	7.5	7.5	7.5	–	–

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	Copper Cliff Treatment Plant
Company Name	INCO LIMITED
Operator Name	INCO Limited
City	Copper Cliff
Province	Ontario
Region	Ontario
Latitude/Longitude	46° 30' N / 81° 00' W
Sector	Base Metals
Product	Nickel-Copper-Cobalt-Platinum
Regulatory Status	Guidelines
Effluent Discharge Point	
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/day)	–	69 400	70 200	121 400	154 500	122 800	133 300	84 160	50 340	93 080	167 800	159 100	177 800
TSM	(mg/L)	25.0	5.600	6.100	4.400	3.400	3.200	3.200	3.100	3.000	3.200	3.000	3.000	3.000
As	(mg/L)	0.5	0.002	0.001	0.002	0.002	0.000	–	0.002	–	0.002	0.002	0.002	0.002
Cu	(mg/L)	0.3	0.240	0.280	**0.310**	0.150	0.130	0.080	0.050	0.070	0.040	0.060	0.080	0.130
Ni	(mg/L)	0.5	0.460	0.450	**0.600**	0.110	0.080	0.080	0.110	0.190	0.200	0.190	0.210	0.150
Pb	(mg/L)	0.2	0.030	0.030	0.030	0.030	0.030	0.030	0.030	0.030	0.030	0.030	0.030	0.030
Zn	(mg/L)	0.5	0.066	0.035	0.067	0.037	0.012	0.010	0.017	0.037	0.027	0.038	0.010	0.047
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	8.3	8.3	8.5	8.5	8.4	8.6	8.0	8.4	8.0	8.3	7.1	7.9

Boxed data indicates that a monthly effluent quality standard (MEQS) was exceeded for that month.

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	**Craigmont**
Company Name	**CRAIGMONT MINES LTD.**
Operator Name	**Craigmont Mines Ltd.**
City	**Merritt**
Province	**British Columbia**
Region	**Pacific and Yukon**
Latitude/Longitude	**50° 12' N / 150° 55' W**
Sector	**Base Metals**
Product	**Iron**
Regulatory Status	**Regulations**
Effluent Discharge Point	**Adit Water**
Comments	**No effluent discharged in 2001.**

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/day)	–	0	0	0	0	0	0	0	0	0	0	0	0
TSM	(mg/L)	25.0	–	–	–	–	–	–	–	–	–	–	–	–
As	(mg/L)	0.5	–	–	–	–	–	–	–	–	–	–	–	–
Cu	(mg/L)	0.3	–	–	–	–	–	–	–	–	–	–	–	–
Ni	(mg/L)	0.5	–	–	–	–	–	–	–	–	–	–	–	–
Pb	(mg/L)	0.2	–	–	–	–	–	–	–	–	–	–	–	–
Zn	(mg/L)	0.5	–	–	–	–	–	–	–	–	–	–	–	–
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	–	–	–	–	–	–	–	–	–	–	–	–

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	Crean Hill
Company Name	INCO LIMITED
Operator Name	INCO Limited
City	Copper Cliff
Province	Ontario
Region	Ontario
Latitude/Longitude	46° 25' N / 81° 21' W
Sector	Base Metals
Product	Nickel-Copper-Cobalt-Platinum
Regulatory Status	Guidelines
Effluent Discharge Point	
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/day)	–	1 301	1 049	2 120	11 080	2 415	1 913	379	624	4 016	5 969	4 277	3 552
TSM	(mg/L)	25.0	3.200	3.200	3.300	13.700	3.300	3.000	3.100	3.000	3.300	3.200	3.100	3.000
As	(mg/L)	0.5	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
Cu	(mg/L)	0.3	0.010	0.004	0.003	0.015	0.024	0.005	0.004	0.006	0.017	0.022	0.009	0.008
Ni	(mg/L)	0.5	0.340	0.210	0.190	0.250	0.210	0.180	0.120	0.130	0.340	0.420	0.260	0.160
Pb	(mg/L)	0.2	0.030	0.030	0.030	0.030	0.030	0.030	0.030	0.030	0.030	0.030	0.030	0.030
Zn	(mg/L)	0.5	0.017	0.010	0.010	0.107	0.034	0.010	0.025	0.022	0.022	0.031	0.008	0.014
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	7.6	7.5	7.5	7.8	8.2	8.4	8.3	8.5	8.9	8.7	8.9	8.6

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	**Endako**
Company Name	**THOMPSON CREEK MINING LTD.**
Operator Name	**Thompson Creek Mining Company**
City	**Endako**
Province	**British Columbia**
Region	**Pacific and Yukon**
Latitude/Longitude	**54° 02' N / 125° 06' W**
Sector	**Base Metals**
Product	**Molybdenum**
Regulatory Status	**Guidelines**
Effluent Discharge Point	**#1 Pond 1A Dam Discharge**
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/day)	–	1 289	1 392	1 500	2 278	1 730	1 981	1 730	1 591	1 500	1 730	2 114	1 591
TSM	(mg/L)	25.0	4.000	4.000	3.000	4.000	4.000	4.000	4.000	4.000	5.000	4.000	3.000	3.000
As	(mg/L)	0.5	–	–	–	–	–	–	–	–	–	–	–	–
Cu	(mg/L)	0.3	–	–	–	–	–	–	–	–	–	–	–	–
Ni	(mg/L)	0.5	–	–	–	–	–	–	–	–	–	–	–	–
Pb	(mg/L)	0.2	–	–	–	–	–	–	–	–	–	–	–	–
Zn	(mg/L)	0.5	–	–	–	–	–	–	–	–	–	–	–	–
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	8.0	7.7	7.9	8.1	8.0	8.1	8.0	8.1	8.0	8.1	8.0	8.0

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	Endako
Company Name	THOMPSON CREEK MINING LTD.
Operator Name	Thompson Creek Mining Company
City	Endako
Province	British Columbia
Region	Pacific and Yukon
Latitude/Longitude	54° 02' N / 125° 06' W
Sector	Base Metals
Product	Molybdenum
Regulatory Status	Guidelines
Effluent Discharge Point	#1 Pond North Dam Discharge
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/day)	–	842	1 008	1 191	1 730	1 289	1 500	923	842	923	1 096	1 500	1 500
TSM	(mg/L)	25.0	4.000	4.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000
As	(mg/L)	0.5	–	–	–	–	–	–	–	–	–	–	–	–
Cu	(mg/L)	0.3	–	–	–	–	–	–	–	–	–	–	–	–
Ni	(mg/L)	0.5	–	–	–	–	–	–	–	–	–	–	–	–
Pb	(mg/L)	0.2	–	–	–	–	–	–	–	–	–	–	–	–
Zn	(mg/L)	0.5	–	–	–	–	–	–	–	–	–	–	–	–
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	8.1	7.9	8.0	8.1	8.1	8.1	8.0	8.1	8.1	8.1	8.2	8.0

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	Endako
Company Name	THOMPSON CREEK MINING LTD.
Operator Name	Thompson Creek Mining Company
City	Endako
Province	British Columbia
Region	Pacific and Yukon
Latitude/Longitude	54° 02' N / 125° 06' W
Sector	Base Metals
Product	Molybdenum
Regulatory Status	Guidelines
Effluent Discharge Point	#2 Pond South Dam West Discharge
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/day)	–	1 217	1 217	2 431	1 567	1 373	1 273	1 148	1 229	1 148	1 230	1 473	1 358
TSM	(mg/L)	25.0	5.000	6.000	9.000	16.000	5.500	7.000	15.000	24.000	19.000	8.000	3.000	3.000
As	(mg/L)	0.5	–	–	–	–	–	–	–	–	–	–	–	–
Cu	(mg/L)	0.3	–	–	–	–	–	–	–	–	–	–	–	–
Ni	(mg/L)	0.5	–	–	–	–	–	–	–	–	–	–	–	–
Pb	(mg/L)	0.2	–	–	–	–	–	–	–	–	–	–	–	–
Zn	(mg/L)	0.5	–	–	–	–	–	–	–	–	–	–	–	–
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	8.0	7.9	8.0	8.1	8.0	8.1	8.1	8.1	8.0	8.1	8.0	8.0

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	**Endako**
Company Name	**THOMPSON CREEK MINING LTD.**
Operator Name	**Thompson Creek Mining Company**
City	**Endako**
Province	**British Columbia**
Region	**Pacific and Yukon**
Latitude/Longitude	**54° 02' N / 125° 06' W**
Sector	**Base Metals**
Product	**Molybdenum**
Regulatory Status	**Guidelines**
Effluent Discharge Point	**New East Dam Discharge**
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/day)	–	1 008	1 191	1 289	1 500	1 284	1 392	1 392	1 096	1 289	1 289	1 590	1 289
TSM	(mg/L)	25.0	3.000	3.000	3.000	3.000	3.000	3.000	3.000	4.000	3.000	3.000	3.000	3.000
As	(mg/L)	0.5	–	–	–	–	–	–	–	–	–	–	–	–
Cu	(mg/L)	0.3	–	–	–	–	–	–	–	–	–	–	–	–
Ni	(mg/L)	0.5	–	–	–	–	–	–	–	–	–	–	–	–
Pb	(mg/L)	0.2	–	–	–	–	–	–	–	–	–	–	–	–
Zn	(mg/L)	0.5	–	–	–	–	–	–	–	–	–	–	–	–
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	8.0	7.9	8.0	8.1	8.0	8.0	8.1	8.1	8.1	8.1	8.0	8.0

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	**Endako**
Company Name	**THOMPSON CREEK MINING LTD.**
Operator Name	**Thompson Creek Mining Company**
City	**Endako**
Province	**British Columbia**
Region	**Pacific and Yukon**
Latitude/Longitude	**54° 02' N / 125° 06' W**
Sector	**Base Metals**
Product	**Molybdenum**
Regulatory Status	**Guidelines**
Effluent Discharge Point	**South Boundary Creek Discharge**
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/day)	–	710	565	710	1 730	2 544	1 853	1 289	2 278	1 191	265	710	842
TSM	(mg/L)	25.0	3.000	3.000	3.000	7.000	3.000	3.000	3.000	3.000	3.000	4.000	3.000	3.000
As	(mg/L)	0.5	–	–	–	–	–	–	–	–	–	–	–	–
Cu	(mg/L)	0.3	–	–	–	–	–	–	–	–	–	–	–	–
Ni	(mg/L)	0.5	–	–	–	–	–	–	–	–	–	–	–	–
Pb	(mg/L)	0.2	–	–	–	–	–	–	–	–	–	–	–	–
Zn	(mg/L)	0.5	–	–	–	–	–	–	–	–	–	–	–	–
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	8.0	8.0	8.1	8.1	8.1	8.2	8.2	8.2	8.1	8.2	8.2	8.1

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	**Eskay Creek**
Company Name	**PRIME RESOURCES GROUP INC.**
Operator Name	**Homestake Canada Inc.**
City	**83 km North of Stewart**
Province	**British Columbia**
Region	**Pacific and Yukon**
Latitude/Longitude	**56° 39' N / 30° 27' W**
Sector	**Precious Metals**
Product	**Gold-Silver**
Regulatory Status	**Regulations**
Effluent Discharge Point	**D7**
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/day)	–	3 850	3 779	338	3 035	3 467	7 608	6 919	5 220	4 826	4 219	3 699	3 190
TSM	(mg/L)	25.0	7.200	5.750	10.000	8.800	14.500	18.000	13.200	9.750	6.000	19.800	14.250	11.285
As	(mg/L)	0.5	0.003	0.006	0.006	0.004	0.004	0.002	0.005	0.004	0.002	0.005	0.003	0.004
Cu	(mg/L)	0.3	0.009	0.010	0.010	0.010	0.010	0.010	0.008	0.010	0.010	0.010	0.010	0.010
Ni	(mg/L)	0.5	0.050	0.050	0.050	0.050	0.050	0.050	0.041	0.050	0.050	0.050	0.020	0.016
Pb	(mg/L)	0.2	0.066	0.073	0.050	0.064	0.100	0.053	0.072	0.050	0.050	0.072	0.083	0.044
Zn	(mg/L)	0.5	0.082	0.064	0.069	0.078	0.106	0.068	0.069	0.056	0.087	0.077	0.132	0.173
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	8.0	8.0	8.0	8.0	8.0	7.8	8.0	7.9	7.9	7.9	7.8	8.0

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	**Eskay Creek**
Company Name	**PRIME RESOURCES GROUP INC.**
Operator Name	**Homestake Canada Inc.**
City	**83 km North of Stewart**
Province	**British Columbia**
Region	**Pacific and Yukon**
Latitude/Longitude	**56° 39' N / 30° 27' W**
Sector	**Precious Metals**
Product	**Gold-Silver**
Regulatory Status	**Regulations**
Effluent Discharge Point	**W20**
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/day)	–	1 831	1 222	1 396	1 362	3 698	11 916	10 437	2 891	5 189	3 500	2 016	1 545
TSM	(mg/L)	25.0	3.000	3.000	3.000	3.000	3.000	4.750	4.800	3.000	3.000	3.000	3.000	3.166
As	(mg/L)	0.5	0.013	0.013	0.016	0.019	0.015	0.008	0.005	0.006	0.013	0.014	0.013	0.014
Cu	(mg/L)	0.3	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Ni	(mg/L)	0.5	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Pb	(mg/L)	0.2	0.013	0.044	0.007	0.005	0.005	0.030	0.030	0.006	0.006	0.006	0.002	0.003
Zn	(mg/L)	0.5	0.010	0.022	0.016	0.011	0.008	0.014	0.016	0.005	0.005	0.005	0.005	0.005
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	7.7	7.6	7.8	7.9	7.9	7.5	7.7	7.6	7.9	7.9	7.9	7.7

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	**Flin Flon Mill**
Company Name	**HUDSON BAY MINING AND SMELTING CO., LTD.**
Operator Name	**Hudson Bay Mining and Smelting Co. Ltd.**
City	**Flin Flon**
Province	**Manitoba**
Region	**Prairie and Northern**
Latitude/Longitude	**54° 46' N / 101° 53' W**
Sector	**Base Metals**
Product	**Copper-Lead-Zinc**
Regulatory Status	**Guidelines**
Effluent Discharge Point	**Tailings Pond North Weir**
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/month)	–	676 100	458 300	1 077 300	1 068 300	877 900	830 400	974 400	543 300	1 151 700	901 400	680 700	861 700
TSM	(mg/L)	25.0	7.000	8.000	8.000	4.000	2.000	5.000	1.000	2.000	2.000	2.000	8.000	2.000
As	(mg/L)	0.5	0.028	0.021	0.029	0.016	0.005	0.004	0.003	0.002	0.003	0.003	0.005	0.005
Cu	(mg/L)	0.3	0.020	0.010	0.070	0.170	0.020	0.020	0.010	0.010	0.010	0.010	0.050	0.020
Ni	(mg/L)	0.5	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010
Pb	(mg/L)	0.2	0.040	0.030	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040
Zn	(mg/L)	0.5	0.040	0.030	0.060	0.250	0.240	0.280	0.190	0.190	0.170	0.140	0.400	0.160
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	10.6	10.1	10.2	9.9	10.2	10.3	10.4	10.5	10.4	10.3	9.7	10.3

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	**Francoeur**
Company Name	**RICHMONT MINES INC.**
Operator Name	**Richmont Mines Inc.**
City	**Rouyn-Noranda**
Province	**Québec**
Region	**Québec**
Latitude/Longitude	**48° 13' N / 79° 17' W**
Sector	**Precious Metals**
Product	**Gold**
Regulatory Status	**Regulations**
Effluent Discharge Point	**Settling Pond Discharge**
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/day)	–	1 368	1 336	1 354	1 433	1 480	1 411	1 361	1 328	1 292	1 285	1 348	1 277
TSM	(mg/L)	25.0	3.000	5.000	5.000	10.000	10.000	12.000	9.000	8.000	10.000	11.000	10.000	4.000
As	(mg/L)	0.5	–	–	–	0.002	–	–	–	–	–	0.002	–	–
Cu	(mg/L)	0.3	–	–	–	0.020	–	–	–	–	–	0.010	–	–
Ni	(mg/L)	0.5	–	–	–	0.060	–	–	–	–	–	0.050	–	–
Pb	(mg/L)	0.2	–	–	–	0.010	–	–	–	–	–	0.010	–	–
Zn	(mg/L)	0.5	–	–	–	0.010	–	–	–	–	–	0.010	–	–
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	7.5	7.7	7.8	7.7	7.7	7.0	7.3	7.5	7.8	7.7	7.8	7.9

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	**Garson**
Company Name	**INCO LIMITED**
Operator Name	**INCO Limited**
City	**Copper Cliff**
Province	**Ontario**
Region	**Ontario**
Latitude/Longitude	**46° 25' N / 81° 21' W**
Sector	**Base Metals**
Product	**Nickel-Copper-Cobalt-Platinum**
Regulatory Status	**Guidelines**
Effluent Discharge Point	
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/day)	–	1 579	1 589	1 776	2 350	2 536	2 242	1 794	1 940	1 993	2 486	2 816	2 402
TSM	(mg/L)	25.0	3.000	3.100	3.900	3.000	4.800	3.500	4.200	3.000	3.000	3.000	3.000	3.000
As	(mg/L)	0.5	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
Cu	(mg/L)	0.3	0.005	0.003	0.003	0.003	0.005	0.003	0.003	0.004	0.003	0.003	0.009	0.004
Ni	(mg/L)	0.5	0.172	0.170	0.095	0.077	0.092	0.074	0.047	0.050	0.082	0.101	0.126	0.124
Pb	(mg/L)	0.2	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
Zn	(mg/L)	0.5	0.017	0.010	0.010	0.032	0.011	0.016	0.013	0.248	0.034	0.025	0.031	0.027
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	7.4	7.7	7.2	7.1	8.0	8.5	8.7	7.2	7.2	7.4	6.7	7.2

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	**Gonzague Langlois**
Company Name	**CAMBIOR INC.**
Operator Name	**Cambior Inc.**
City	**50 miles North-East of Lebel-sur-Quevillon**
Province	**Québec**
Region	**Québec**
Latitude/Longitude	**49° 15' N / 76° 45' W**
Sector	**Base Metals**
Product	**Zinc-Copper**
Regulatory Status	**Regulations**
Effluent Discharge Point	**Ditch 3A**
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/day)	–	0	0	0	0	17	9	16	30	60	19	30	17
TSM	(mg/L)	25.0	–	–	–	–	1.300	5.000	2.100	1.800	5.000	2.600	6.300	1.200
As	(mg/L)	0.5	–	–	–	–	–	–	0.001	–	–	–	–	–
Cu	(mg/L)	0.3	–	–	–	–	0.010	0.010	0.010	0.010	0.010	–	0.010	0.010
Ni	(mg/L)	0.5	–	–	–	–	–	–	0.020	–	–	–	–	–
Pb	(mg/L)	0.2	–	–	–	–	–	–	0.005	–	–	–	–	–
Zn	(mg/L)	0.5	–	–	–	–	–	–	0.010	–	–	–	0.180	–
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	–	–	–	–	7.4	7.3	7.3	7.4	7.2	7.4	7.2	7.0

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	**Gonzague Langlois**
Company Name	**CAMBIOR INC.**
Operator Name	**Cambior Inc.**
City	**50 miles North-East of Lebel-sur-Quevillon**
Province	**Québec**
Region	**Québec**
Latitude/Longitude	**49° 15' N / 76° 45' W**
Sector	**Base Metals**
Product	**Zinc-Copper**
Regulatory Status	**Regulations**
Effluent Discharge Point	**Ditch 3C**
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/day)	–	187	194	276	253	233	218	257	287	395	435	348	307
TSM	(mg/L)	25.0	1.000	1.500	3.100	2.900	1.400	2.900	3.000	2.200	3.100	3.500	3.800	1.700
As	(mg/L)	0.5	0.010	–	–	–	–	–	0.001	–	–	–	–	–
Cu	(mg/L)	0.3	0.010	–	–	–	–	–	0.010	–	–	–	–	–
Ni	(mg/L)	0.5	0.040	–	–	–	–	–	0.020	–	–	–	–	–
Pb	(mg/L)	0.2	0.010	0.010	0.010	0.010	0.005	0.030	0.005	0.005	0.005	0.005	0.005	0.005
Zn	(mg/L)	0.5	0.030	–	–	–	–	–	0.010	–	–	–	–	–
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	7.1	7.2	7.4	7.2	7.4	7.5	7.4	7.4	7.3	7.5	7.4	7.3

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	**Gonzague Langlois**
Company Name	**CAMBIOR INC.**
Operator Name	**Cambior Inc.**
City	**50 miles North-East of Lebel-sur-Quevillon**
Province	**Québec**
Region	**Québec**
Latitude/Longitude	**49° 15' N / 76° 45' W**
Sector	**Base Metals**
Product	**Zinc-Copper**
Regulatory Status	**Regulations**
Effluent Discharge Point	**Ditch 4**
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/day)	–	2 610	2 455	0	156	60	48	51	19	120	47	111	0
TSM	(mg/L)	25.0	3.100	0.600	–	10.000	1.600	4.600	3.200	4.900	–	2.200	4.900	–
As	(mg/L)	0.5	–	–	–	–	–	–	0.001	–	–	–	–	–
Cu	(mg/L)	0.3	0.030	0.030	–	–	–	–	0.010	–	–	–	–	–
Ni	(mg/L)	0.5	–	–	–	–	–	–	0.020	–	–	–	–	–
Pb	(mg/L)	0.2	–	–	–	–	–	–	0.005	–	–	–	–	–
Zn	(mg/L)	0.5	0.500	0.500	–	–	–	–	0.010	–	–	–	–	–
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	7.1	7.4	–	7.4	7.8	7.8	7.8	7.4	7.2	7.5	7.2	–

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	Gonzague Langlois
Company Name	CAMBIOR INC.
Operator Name	Cambior Inc.
City	50 miles North-East of Lebel-sur-Quevillon
Province	Québec
Region	Québec
Latitude/Longitude	49° 15' N / 76° 45' W
Sector	Base Metals
Product	Zinc-Copper
Regulatory Status	Regulations
Effluent Discharge Point	Pond
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/day)	–	2 563	2 455	0	5 896	6 077	6 064	4 031	3 213	0	6 011	6 018	5 839
TSM	(mg/L)	25.0	3.900	0.600	–	2.200	1.700	2.30	2.200	3.000	–	1.600	2.500	1.600
As	(mg/L)	0.5	0.003	–	–	–	–	–	0.002	–	–	–	–	–
Cu	(mg/L)	0.3	0.030	0.030	–	0.010	–	0.020	0.010	0.010	–	0.020	0.010	0.010
Ni	(mg/L)	0.5	0.070	–	–	–	–	–	0.020	–	–	–	–	–
Pb	(mg/L)	0.2	–	–	–	–	–	–	0.010	–	–	–	–	–
Zn	(mg/L)	0.5	0.260	0.500	–	0.110	0.120	0.130	0.150	0.090	–	0.150	0.180	0.200
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	6.9	7.4	–	8.1	7.7	7.5	7.5	7.6	–	7.4	7.5	7.5

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	Highland Valley Copper
Company Name	COMINCO LTD.
Operator Name	Highland Valley Copper
City	Logan Lake
Province	British Columbia
Region	Pacific and Yukon
Latitude/Longitude	48° 31' N / 79° 45' W
Sector	Base Metals
Product	Copper-Molybdenum
Regulatory Status	Regulations
Effluent Discharge Point	Bose Lake Discharge
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/month)	–	–	–	–	–	1 116	1 296	–	804	–	1 116	–	–
TSM	(mg/L)	25.0	–	–	5.000	8.000	6.000	11.000	5.000	15.000	–	14.000	–	–
As	(mg/L)	0.5	–	–	0.010	0.010	0.010	0.010	0.010	0.010	–	0.010	–	–
Cu	(mg/L)	0.3	–	–	0.001	0.011	0.001	0.001	0.001	0.001	–	0.001	–	–
Ni	(mg/L)	0.5	–	–	0.010	0.010	0.010	0.010	0.010	0.010	–	0.010	–	–
Pb	(mg/L)	0.2	–	–	0.005	0.005	0.005	0.005	0.005	0.005	–	0.005	–	–
Zn	(mg/L)	0.5	–	–	0.005	0.005	0.005	0.005	0.005	0.005	–	0.005	–	–
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	–	–	7.3	8.2	8.4	7.5	7.1	7.6	–	7.2	–	–

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	**Highland Valley Copper**
Company Name	**COMINCO LTD.**
Operator Name	**Highland Valley Copper**
City	**Logan Lake**
Province	**British Columbia**
Region	**Pacific and Yukon**
Latitude/Longitude	**48° 31' N / 79° 45' W**
Sector	**Base Metals**
Product	**Copper-Molybdenum**
Regulatory Status	**Regulations**
Effluent Discharge Point	**Highmont Tailings South Seepage Pond**
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/month)	–	–	–	–	–	–	1 728	1 786	–	–	–	–	–
TSM	(mg/L)	25.0	–	39.000	–	3.000	2.000	1.000	1.000	1.000	–	14.000	–	–
As	(mg/L)	0.5	–	0.010	–	0.010	0.010	0.010	0.010	0.010	–	0.010	–	–
Cu	(mg/L)	0.3	–	0.009	–	0.006	0.003	0.004	0.007	0.002	–	0.005	–	–
Ni	(mg/L)	0.5	–	0.010	–	0.010	0.010	0.010	0.010	0.010	–	0.010	–	–
Pb	(mg/L)	0.2	–	0.005	–	0.005	0.005	0.005	0.005	0.005	–	0.005	–	–
Zn	(mg/L)	0.5	–	0.005	–	0.005	0.005	0.005	0.005	0.005	–	0.005	–	–
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	–	7.5	–	7.7	8.1	8.3	8.2	8.6	–	8.4	–	–

Boxed data indicates that a monthly effluent quality standard (MEQS) was exceeded for that month.

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	Highland Valley Copper
Company Name	COMINCO LTD.
Operator Name	Highland Valley Copper
City	Logan Lake
Province	British Columbia
Region	Pacific and Yukon
Latitude/Longitude	48° 31' N / 79° 45' W
Sector	Base Metals
Product	Copper-Molybdenum
Regulatory Status	Regulations
Effluent Discharge Point	SRB Point of Discharge at Logging Road
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/month)	–	–	–	–	–	13 392	4 320	982	714	648	670	1 080	–
TSM	(mg/L)	25.0	–	1.000	1.000	4.000	1.000	2.000	4.000	7.000	11.000	34.000	4.000	8.000
As	(mg/L)	0.5	–	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010
Cu	(mg/L)	0.3	–	0.001	0.001	0.004	0.002	0.004	0.003	0.003	0.004	0.003	0.003	0.002
Ni	(mg/L)	0.5	–	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010
Pb	(mg/L)	0.2	–	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Zn	(mg/L)	0.5	–	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	–	7.7	8.2	8.2	8.1	8.0	7.9	7.7	7.6	7.7	7.8	7.8

Boxed data indicates that a monthly effluent quality standard (MEQS) was exceeded for that month.

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	**Highland Valley Copper**
Company Name	**COMINCO LTD.**
Operator Name	**Highland Valley Copper**
City	**Logan Lake**
Province	**British Columbia**
Region	**Pacific and Yukon**
Latitude/Longitude	**48° 31' N / 79° 45' W**
Sector	**Base Metals**
Product	**Copper-Molybdenum**
Regulatory Status	**Regulations**
Effluent Discharge Point	**Trojan Creek Discharge**
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/month)	–	–	–	–	73 405	–	73 324	–	63 210	–	61 171	–	–
TSM	(mg/L)	25.0	9.000	–	1.000	7.000	2.000	4.000	–	12.000	–	1.000	–	–
As	(mg/L)	0.5	0.010	–	0.010	0.010	0.010	0.010	–	0.010	–	0.010	–	–
Cu	(mg/L)	0.3	0.008	–	0.001	0.014	0.013	0.018	–	0.034	–	0.013	–	–
Ni	(mg/L)	0.5	0.010	–	0.010	0.010	0.010	0.010	–	0.010	–	0.010	–	–
Pb	(mg/L)	0.2	0.027	–	0.005	0.005	0.005	0.005	–	0.005	–	0.005	–	–
Zn	(mg/L)	0.5	0.005	–	0.005	0.005	0.005	0.005	–	0.005	–	0.005	–	–
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	8.3	–	8.4	8.6	8.6	8.6	–	8.5	–	8.3	–	–

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	Horne Division
Company Name	NORANDA MINING AND EXPLORATION INC.
Operator Name	Noranda Metallurgy Inc.
City	Rouyn-Noranda
Province	Québec
Region	Québec
Latitude/Longitude	48° 15' N / 79° 00' W
Sector	Base Metals
Product	Copper
Regulatory Status	Guidelines
Effluent Discharge Point	#12
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/day)	–	39 744	36 936	38 772	139 622	57 744	59 580	59 789	42 912	75 744	87 984	79 488	64 368
TSM	(mg/L)	25.0	3.000	3.000	3.000	9.200	4.500	3.000	3.000	3.000	4.500	3.800	3.500	3.000
As	(mg/L)	0.5	0.040	0.040	0.040	0.050	0.040	0.040	0.020	0.020	0.035	0.012	0.010	0.010
Cu	(mg/L)	0.3	0.030	0.020	0.030	0.100	0.030	0.040	0.030	0.030	0.050	0.080	0.080	0.040
Ni	(mg/L)	0.5	0.040	0.050	0.050	0.050	0.050	0.050	0.010	0.010	0.010	0.022	0.020	0.010
Pb	(mg/L)	0.2	0.040	0.040	0.040	0.040	0.040	0.040	0.010	0.010	0.010	0.010	0.010	0.010
Zn	(mg/L)	0.5	0.060	0.060	0.080	0.310	0.040	0.060	0.030	0.010	0.060	0.380	0.210	0.120
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	9.4	8.4	8.6	8.3	8.0	8.2	10.2	8.5	7.6	7.5	7.4	8.5

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	Horne Division
Company Name	NORANDA MINING AND EXPLORATION INC.
Operator Name	Noranda Metallurgy Inc.
City	Rouyn-Noranda
Province	Québec
Region	Québec
Latitude/Longitude	48° 15' N / 79° 00' W
Sector	Base Metals
Product	Copper
Regulatory Status	Guidelines
Effluent Discharge Point	PI-06
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/day)	–	–	–	–	–	–	–	–	–	–	–	–	–
TSM	(mg/L)	25.0	12.000	18.800	4.500	9.600	13.000	4.000	3.000	3.500	5.500	4.400	4.000	3.400
As	(mg/L)	0.5	0.040	0.040	0.040	0.040	0.040	0.040	0.022	0.010	0.010	0.010	0.010	0.010
Cu	(mg/L)	0.3	0.030	0.050	0.030	0.090	0.030	0.020	0.030	0.010	0.010	0.040	0.070	0.030
Ni	(mg/L)	0.5	0.040	0.050	0.050	0.050	0.050	0.050	0.010	0.010	0.010	0.010	0.020	0.010
Pb	(mg/L)	0.2	0.040	0.040	0.040	0.040	0.040	0.040	0.010	0.010	0.010	0.010	0.010	0.010
Zn	(mg/L)	0.5	0.040	0.020	0.020	0.330	0.090	0.030	0.030	0.020	0.020	0.400	0.417	0.150
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	7.4	9.1	7.9	7.5	7.5	7.3	8.2	7.4	7.4	7.6	8.0	7.2

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	**Huckleberry**
Company Name	**PRINCETON MINING CORPORATION**
Operator Name	**Huckleberry Mines Ltd.**
City	**86 km SW of Houston, Omineca Division**
Province	**British Columbia**
Region	**Pacific and Yukon**
Latitude/Longitude	**53° 41' N / 127° 10' W**
Sector	**Base Metals**
Product	**Copper-Molybdenum-Gold-Silver**
Regulatory Status	**Regulations**
Effluent Discharge Point	**East Zone**
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/day)	–	–	–	–	–	–	–	–	158	145	145	123	123
TSM	(mg/L)	25.0	23.000	6.000	4.000	4.000	11.000	4.000	4.000	3.000	3.000	3.000	3.000	4.000
As	(mg/L)	0.5	–	–	–	–	–	–	–	–	–	–	–	–
Cu	(mg/L)	0.3	–	–	–	–	–	–	–	–	–	–	–	–
Ni	(mg/L)	0.5	–	–	–	–	–	–	–	–	–	–	–	–
Pb	(mg/L)	0.2	–	–	–	–	–	–	–	–	–	–	–	–
Zn	(mg/L)	0.5	–	–	–	–	–	–	–	–	–	–	–	–
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	6.8	7.2	7.6	7.5	7.5	7.4	7.9	7.4	7.6	7.1	7.5	7.4

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	Huckleberry
Company Name	PRINCETON MINING CORPORATION
Operator Name	Huckleberry Mines Ltd.
City	86 km SW of Houston, Omineca Division
Province	British Columbia
Region	Pacific and Yukon
Latitude/Longitude	53° 41' N / 127° 10' W
Sector	Base Metals
Product	Copper-Molybdenum-Gold-Silver
Regulatory Status	Regulations
Effluent Discharge Point	SC-02
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/day)	–	75	80	121	300	422	281	249	293	320	340	252	223
TSM	(mg/L)	25.0	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000
As	(mg/L)	0.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Cu	(mg/L)	0.3	0.002	0.005	0.003	0.003	0.004	0.003	0.003	0.003	0.010	0.005	0.002	0.002
Ni	(mg/L)	0.5	–	–	–	–	–	–	–	–	–	–	–	–
Pb	(mg/L)	0.2	0.005	0.010	0.010	0.005	0.001	0.001	0.001	0.020	0.001	0.001	0.010	0.001
Zn	(mg/L)	0.5	0.005	0.007	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	7.8	7.8	7.9	7.8	7.9	8.0	7.9	7.8	8.1	7.8	7.8	7.8

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	**Huckleberry**
Company Name	**PRINCETON MINING CORPORATION**
Operator Name	**Huckleberry Mines Ltd.**
City	**86 km SW of Houston, Omineca Division**
Province	**British Columbia**
Region	**Pacific and Yukon**
Latitude/Longitude	**53° 41' N / 127° 10' W**
Sector	**Base Metals**
Product	**Copper-Molybdenum-Gold-Silver**
Regulatory Status	**Regulations**
Effluent Discharge Point	**SC-03**
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/day)	–	464	426	392	455	994	382	392	431	411	436	441	425
TSM	(mg/L)	25.0	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000
As	(mg/L)	0.5	0.001	0.001	0.000	0.000	0.001	0.001	0.000	0.001	0.000	0.001	0.001	0.001
Cu	(mg/L)	0.3	0.050	0.063	0.050	0.040	0.050	0.040	0.030	0.030	0.040	0.025	0.060	0.060
Ni	(mg/L)	0.5	–	–	–	–	–	–	–	–	–	–	–	–
Pb	(mg/L)	0.2	0.005	0.010	0.010	0.005	0.010	0.010	0.010	0.020	0.010	0.001	0.010	0.001
Zn	(mg/L)	0.5	0.005	0.011	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	8.0	7.9	8.0	7.8	7.9	7.9	7.9	8.0	8.0	7.8	7.9	7.9

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	**Huckleberry**
Company Name	**PRINCETON MINING CORPORATION**
Operator Name	**Huckleberry Mines Ltd.**
City	**86 km SW of Houston, Omineca Division**
Province	**British Columbia**
Region	**Pacific and Yukon**
Latitude/Longitude	**53° 41' N / 127° 10' W**
Sector	**Base Metals**
Product	**Copper-Molybdenum-Gold-Silver**
Regulatory Status	**Regulations**
Effluent Discharge Point	**SC-04**
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/day)	–	1 420	1 222	1 452	1 843	2 691	2 015	1 330	927	748	1 198	1 101	1 014
TSM	(mg/L)	25.0	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000
As	(mg/L)	0.5	0.000	–	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Cu	(mg/L)	0.3	0.005	0.005	0.006	0.011	0.011	0.006	0.006	0.005	0.010	0.007	0.013	0.007
Ni	(mg/L)	0.5	–	–	–	–	–	–	–	–	–	–	–	–
Pb	(mg/L)	0.2	0.005	0.010	0.010	0.005	0.001	0.001	0.001	0.020	0.001	0.001	0.010	0.001
Zn	(mg/L)	0.5	0.005	0.007	0.055	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	8.0	7.9	8.0	7.8	7.9	7.9	7.9	7.9	8.0	7.8	7.8	7.9

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	Huckleberry
Company Name	PRINCETON MINING CORPORATION
Operator Name	Huckleberry Mines Ltd.
City	86 km SW of Houston, Omineca Division
Province	British Columbia
Region	Pacific and Yukon
Latitude/Longitude	53° 41' N / 127° 10' W
Sector	Base Metals
Product	Copper-Molybdenum-Gold-Silver
Regulatory Status	Regulations
Effluent Discharge Point	SC-05
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/day)	–	–	–	–	–	89	1 142	–	–	–	–	–	–
TSM	(mg/L)	25.0	–	–	–	–	5.000	5.000	–	–	–	–	–	–
As	(mg/L)	0.5	–	–	–	–	0.001	0.000	–	–	–	–	–	–
Cu	(mg/L)	0.3	–	–	–	–	0.005	0.003	–	–	–	–	–	–
Ni	(mg/L)	0.5	–	–	–	–	–	–	–	–	–	–	–	–
Pb	(mg/L)	0.2	–	–	–	–	0.001	0.001	–	–	–	–	–	–
Zn	(mg/L)	0.5	–	–	–	–	0.005	0.005	–	–	–	–	–	–
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	–	–	–	–	7.3	7.8	–	–	–	–	–	–

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	**Joe Mann**
Company Name	**CAMPBELL RESOURCES INC.**
Operator Name	**Meston Resources Inc.**
City	**Chibougamau**
Province	**Québec**
Region	**Québec**
Latitude/Longitude	**49° 29' N / 74° 26' W**
Sector	**Precious Metals**
Product	**Gold-Copper**
Regulatory Status	**Regulations**
Effluent Discharge Point	**Final Effluent**
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/day)	–	–	–	–	–	–	–	–	–	–	–	–	–
TSM	(mg/L)	25.0	2.000	0.600	0.800	0.800	5.200	2.800	2.000	4.800	3.600	4.000	4.000	4.000
As	(mg/L)	0.5	–	–	–	–	–	–	–	–	–	–	–	–
Cu	(mg/L)	0.3	0.020	0.010	0.010	0.010	0.010	0.100	0.070	0.020	0.010	0.010	0.020	0.010
Ni	(mg/L)	0.5	–	–	–	–	–	–	–	–	–	–	–	–
Pb	(mg/L)	0.2	–	–	–	–	–	–	–	–	–	–	–	–
Zn	(mg/L)	0.5	–	–	–	–	–	–	–	–	–	–	–	–
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	7.9	8.0	7.7	7.9	8.1	8.3	8.3	8.5	8.4	8.2	8.1	8.0

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	**Katinniq**
Company Name	**SOCIETE MINIERE RAGLAN DU QUÉBEC**
Operator Name	**Société Minière Raglan du Québec**
City	**65 km South of Northern tip of Ungava Peninsula**
Province	**Québec**
Region	**Québec**
Latitude/Longitude	**61° 39' N / 73° 41' W**
Sector	**Base Metals**
Product	**Nickel-Copper-Cobalt**
Regulatory Status	**Regulations**
Effluent Discharge Point	**DIR-HS**
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/day)	–	–	–	–	–	–	50 853	140 867	67 362	152 559	–	–	–
TSM	(mg/L)	25.0	–	–	–	–	–	2.400	2.800	4.000	3.100	–	–	–
As	(mg/L)	0.5	–	–	–	–	–	0.010	0.010	0.010	0.010	–	–	–
Cu	(mg/L)	0.3	–	–	–	–	–	0.010	0.010	0.010	0.020	–	–	–
Ni	(mg/L)	0.5	–	–	–	–	–	0.440	0.410	0.340	0.320	–	–	–
Pb	(mg/L)	0.2	–	–	–	–	–	0.008	0.005	0.005	0.005	–	–	–
Zn	(mg/L)	0.5	–	–	–	–	–	0.020	0.010	0.010	0.010	–	–	–
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	–	–	–	–	–	8.0	8.6	9.0	8.4	–	–	–

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	**Katinniq**
Company Name	**SOCIETE MINIERE RAGLAN DU QUÉBEC**
Operator Name	**Société Minière Raglan du Québec**
City	**65 km South of Northern tip of Ungava Peninsula**
Province	**Québec**
Region	**Québec**
Latitude/Longitude	**61° 39' N / 73° 41' W**
Sector	**Base Metals**
Product	**Nickel-Copper-Cobalt**
Regulatory Status	**Regulations**
Effluent Discharge Point	**DIR-UT**
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/day)	–	58 649	56 613	18 913	52 572	36 507	58 898	68 099	76 308	81 872	60 337	60 284	41 393
TSM	(mg/L)	25.0	16.400	12.200	14.600	14.600	12.100	14.500	6.500	8.800	9.800	11.200	15.300	13.700
As	(mg/L)	0.5	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050
Cu	(mg/L)	0.3	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010
Ni	(mg/L)	0.5	0.070	0.060	0.100	0.080	0.070	0.230	0.240	0.220	0.280	0.210	0.110	0.090
Pb	(mg/L)	0.2	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050
Zn	(mg/L)	0.5	0.010	0.160	0.020	0.100	0.050	0.040	0.070	0.010	0.010	0.010	0.010	0.010
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	9.1	6.1	9.3	9.3	9.1	9.1	9.2	9.2	9.4	9.2	9.2	9.0

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	**Kemess**
Company Name	**NORTHGATE EXPLORATION LTD.**
Operator Name	**Northgate Exploration Ltd.**
City	**Smithers**
Province	**British Columbia**
Region	**Pacific and Yukon**
Latitude/Longitude	**57° 00' N / 126° 45' W**
Sector	**Precious Metals**
Product	**Gold-Copper**
Regulatory Status	**Regulations**
Effluent Discharge Point	**WQ-14**
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/day)	–	100	100	100	4 320	12 160	20 000	9 000	5 184	5 184	1 000	1 000	100
TSM	(mg/L)	25.0	3.000	6.000	3.000	11.000	4.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000
As	(mg/L)	0.5	0.000	0.000	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Cu	(mg/L)	0.3	0.001	0.005	0.001	0.006	0.003	0.004	0.002	0.001	0.001	0.001	0.001	0.001
Ni	(mg/L)	0.5	–	–	–	–	0.000	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Pb	(mg/L)	0.2	0.000	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Zn	(mg/L)	0.5	0.001	0.005	0.001	0.004	0.001	0.001	0.002	0.001	0.001	0.001	0.001	0.001
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	8.2	8.0	8.2	8.1	8.0	7.9	8.2	8.3	8.1	8.2	8.2	8.2

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	Kemess
Company Name	NORTHGATE EXPLORATION LTD.
Operator Name	Northgate Exploration Ltd.
City	Smithers
Province	British Columbia
Region	Pacific and Yukon
Latitude/Longitude	57° 00' N / 126° 45' W
Sector	Precious Metals
Product	Gold-Copper
Regulatory Status	Regulations
Effluent Discharge Point	WQ-23
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/day)	–	1 987	1 987	2 592	8 640	78 624	155 520	55 000	16 500	7 100	3 900	3 900	1 700
TSM	(mg/L)	25.0	3.000	3.000	3.000	3.000	3.000	4.000	3.000	3.000	46.000	3.000	3.000	3.000
As	(mg/L)	0.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000
Cu	(mg/L)	0.3	0.001	0.001	0.001	0.000	0.001	0.000	0.001	0.001	0.005	0.001	0.001	0.001
Ni	(mg/L)	0.5	–	–	–	–	0.000	–	0.001	0.001	0.002	0.001	0.001	0.001
Pb	(mg/L)	0.2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000
Zn	(mg/L)	0.5	0.041	0.036	0.048	0.032	0.015	0.010	0.004	0.011	0.011	0.006	0.006	0.006
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	7.8	7.6	7.9	7.9	8.0	7.6	7.6	7.7	7.9	7.8	7.8	7.8

Boxed data indicates that a monthly effluent quality standard (MEQS) was exceeded for that month.

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	Kemess
Company Name	NORTHGATE EXPLORATION LTD.
Operator Name	Northgate Exploration Ltd.
City	Smithers
Province	British Columbia
Region	Pacific and Yukon
Latitude/Longitude	57° 00' N / 126° 45' W
Sector	Precious Metals
Product	Gold-Copper
Regulatory Status	Regulations
Effluent Discharge Point	WQ-BVR
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/day)	–	0	0	0	6 480	8 640	12 960	10 800	6 480	6 480	2 400	2 400	864
TSM	(mg/L)	25.0	–	–	–	9.000	9.000	**26.000**	3.000	3.000	4.000	3.000	3.000	3.000
As	(mg/L)	0.5	–	–	–	0.000	0.000	0.000	0.000	–	–	0.000	0.000	0.000
Cu	(mg/L)	0.3	–	–	–	0.001	0.002	0.004	0.001	–	–	0.001	0.001	0.001
Ni	(mg/L)	0.5	–	–	–	–	0.000	–	0.001	–	–	0.001	0.000	0.001
Pb	(mg/L)	0.2	–	–	–	0.000	0.000	0.000	0.000	–	–	0.000	0.000	0.000
Zn	(mg/L)	0.5	–	–	–	0.005	0.004	0.007	0.002	–	–	0.003	0.001	0.001
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	–	–	–	8.2	7.9	7.8	9.0	8.0	8.2	8.1	8.0	8.1

Boxed data indicates that a monthly effluent quality standard (MEQS) was exceeded for that month.

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	Kemess
Company Name	NORTHGATE EXPLORATION LTD.
Operator Name	Northgate Exploration Ltd.
City	Smithers
Province	British Columbia
Region	Pacific and Yukon
Latitude/Longitude	57° 00' N / 126° 45' W
Sector	Precious Metals
Product	Gold-Copper
Regulatory Status	Regulations
Effluent Discharge Point	WQ-BXL
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/day)	–	0	0	0	4 320	8 640	12 960	500	500	0	0	0	0
TSM	(mg/L)	25.0	–	–	–	**23 400.000**	**69.000**	–	14.000	19.000	–	–	–	–
As	(mg/L)	0.5	–	–	–	0.048	0.002	–	0.001	–	–	–	–	–
Cu	(mg/L)	0.3	–	–	–	**0.442**	0.011	–	0.004	–	–	–	–	–
Ni	(mg/L)	0.5	–	–	–	–	0.002	–	0.001	–	–	–	–	–
Pb	(mg/L)	0.2	–	–	–	0.055	0.001	–	0.000	–	–	–	–	–
Zn	(mg/L)	0.5	–	–	–	0.420	0.013	–	0.001	–	–	–	–	–
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	–	–	–	8.3	8.4	–	8.3	8.4	–	–	–	–

Boxed data indicates that a monthly effluent quality standard (MEQS) was exceeded for that month.

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	**Kemess**
Company Name	**NORTHGATE EXPLORATION LTD.**
Operator Name	**Northgate Exploration Ltd.**
City	**Smithers**
Province	**British Columbia**
Region	**Pacific and Yukon**
Latitude/Longitude	**57° 00' N / 126° 45' W**
Sector	**Precious Metals**
Product	**Gold-Copper**
Regulatory Status	**Regulations**
Effluent Discharge Point	**WQ-SRP**
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/day)	–	30	30	30	30	125	278	341	250	125	77	30	30
TSM	(mg/L)	25.0	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000
As	(mg/L)	0.5	0.001	0.000	0.001	0.001	0.000	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Cu	(mg/L)	0.3	0.001	0.001	0.001	0.001	0.001	0.002	0.001	0.001	0.001	0.001	0.001	0.001
Ni	(mg/L)	0.5	–	–	–	–	0.001	–	0.001	0.001	0.001	0.001	0.001	0.001
Pb	(mg/L)	0.2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000
Zn	(mg/L)	0.5	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	8.2	8.1	8.1	8.2	8.1	8.3	8.3	8.3	8.2	8.2	8.2	8.1

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	**Key Lake**
Company Name	**CAMECO CORPORATION**
Operator Name	**Cameco Corporation**
City	**Saskatoon**
Province	**Saskatchewan**
Region	**Prairie and Northern**
Latitude/Longitude	**57° 11' N / 105° 34' W**
Sector	**Uranium**
Product	**Uranium**
Regulatory Status	**Regulations**
Effluent Discharge Point	**Treated Mill Effluent**
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/month)	–	162 380	122 500	106 000	149 000	183 000	140 000	187 000	122 000	214 050	155 000	160 000	225 000
TSM	(mg/L)	25.0	1.400	1.800	1.400	1.300	1.100	1.000	1.600	2.800	4.500	2.000	2.300	1.300
As	(mg/L)	0.5	0.001	0.001	0.002	0.002	0.002	0.005	0.003	0.003	0.003	0.002	0.011	0.004
Cu	(mg/L)	0.3	0.005	0.005	0.005	0.005	0.007	0.005	0.001	0.002	0.005	0.005	0.004	0.004
Ni	(mg/L)	0.5	0.030	0.030	0.040	0.040	0.030	0.040	0.040	0.030	0.030	0.030	0.030	0.030
Pb	(mg/L)	0.2	0.010	0.010	0.010	0.010	0.020	0.010	0.002	0.002	0.010	0.002	0.002	0.002
Zn	(mg/L)	0.5	0.018	0.028	0.005	0.024	0.028	0.005	0.040	0.005	0.011	0.006	0.005	0.006
Ra-226	(pCi/L)	10.0	3.240	1.890	2.430	1.350	1.350	2.430	2.430	2.700	2.970	2.970	2.430	1.350
pH		>6.0	6.4	6.2	6.2	6.2	6.3	6.3	6.3	6.2	6.2	6.3	6.2	6.2

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	**Kidd Creek**
Company Name	**FALCONBRIDGE LTD.**
Operator Name	**Falconbridge Ltd.**
City	**Timmins**
Province	**Ontario**
Region	**Ontario**
Latitude/Longitude	**48° 41' N / 81° 22' W**
Sector	**Base Metals**
Product	**Zinc-Copper-Silver-Lead-Cadmium**
Regulatory Status	***Guidelines***
Effluent Discharge Point	
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/day)	–	5 167	4 082	7 522	55 430	15 030	10 380	14 450	5 237	10 680	10 120	11 470	16 290
TSM	(mg/L)	25.0	0.500	0.900	0.900	0.800	1.400	1.000	–	0.700	0.600	0.900	0.700	0.700
As	(mg/L)	0.5	0.002	0.004	0.002	0.002	0.002	0.002	–	0.002	0.002	0.002	0.003	0.002
Cu	(mg/L)	0.3	0.016	0.039	0.013	0.014	0.007	0.006	–	0.006	0.009	0.010	0.015	0.015
Ni	(mg/L)	0.5	0.002	0.002	0.002	0.002	0.002	0.002	–	0.002	0.002	0.002	0.002	0.002
Pb	(mg/L)	0.2	0.002	0.002	0.002	0.002	0.002	0.002	–	0.002	0.002	0.002	0.002	0.002
Zn	(mg/L)	0.5	0.220	0.190	0.170	0.340	0.110	0.110	–	0.130	0.180	0.250	0.180	0.260
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	7.4	7.4	7.0	7.0	7.6	7.3	7.7	7.4	7.7	7.1	7.3	7.4

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	**Konuto**
Company Name	**HUDSON BAY MINING AND SMELTING CO., LTD.**
Operator Name	**Hudson Bay Mining and Smelting Co. Ltd.**
City	**Near Denare Beach**
Province	**Saskatchewan**
Region	**Prairie and Northern**
Latitude/Longitude	
Sector	**Base Metals**
Product	**Copper**
Regulatory Status	**Regulations**
Effluent Discharge Point	
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/month)	–	450	500	250	1 900	850	800	850	5 850	1 950	3 550	3 525	900
TSM	(mg/L)	25.0	6.000	8.000	7.000	2.000	8.000	9.000	4.000	1.000	2.000	17.000	14.000	9.000
As	(mg/L)	0.5	0.002	0.004	0.003	0.004	0.004	0.005	0.004	0.002	0.004	0.002	0.002	0.002
Cu	(mg/L)	0.3	0.080	0.070	0.090	0.130	0.050	0.060	0.050	0.050	0.010	0.090	0.120	0.060
Ni	(mg/L)	0.5	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010
Pb	(mg/L)	0.2	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040
Zn	(mg/L)	0.5	0.060	0.070	0.090	0.230	0.060	0.070	0.060	0.060	0.100	0.090	0.070	0.080
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	7.6	8.5	7.6	7.3	8.1	8.3	8.0	7.5	7.6	8.1	7.8	7.4

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	**Lac Matagami**
Company Name	**NORANDA MINING AND EXPLORATION INC.**
Operator Name	**Noranda Mining & Exploration Inc.**
City	**Matagami**
Province	**Québec**
Region	**Québec**
Latitude/Longitude	**49° 43' N / 77° 43' W**
Sector	**Base Metals**
Product	**Zinc-Copper**
Regulatory Status	**Guidelines**
Effluent Discharge Point	**Final Effluent**
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/day)	–	–	–	–	–	–	–	–	–	–	–	–	–
TSM	(mg/L)	25.0	3.000	5.000	7.000	13.000	4.000	2.000	1.000	1.000	2.000	2.000	3.000	3.000
As	(mg/L)	0.5	0.050	–	–	–	–	–	–	–	–	–	–	–
Cu	(mg/L)	0.3	0.030	0.040	0.030	0.020	0.010	–	0.010	0.010	0.010	0.010	0.010	0.010
Ni	(mg/L)	0.5	0.010	0.020	0.020	0.020	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010
Pb	(mg/L)	0.2	0.030	0.030	0.020	0.040	0.010	0.030	0.020	0.030	0.030	0.020	0.010	0.010
Zn	(mg/L)	0.5	0.020	0.010	0.010	0.340	0.080	0.030	0.100	0.040	0.040	0.240	0.330	0.200
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	8.7	9.2	9.3	9.2	8.5	8.9	7.9	7.9	7.7	8.0	7.8	9.1

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	Lac Tio
Company Name	QIT FER ET TITANE INC.
Operator Name	QIT-Fer et Titane Inc.
City	Havre St-Pierre
Province	Québec
Region	Québec
Latitude/Longitude	50° 33' N / 63° 25' W
Sector	Iron
Product	Iron-Titanium
Regulatory Status	Guidelines
Effluent Discharge Point	Mine Water
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/day)	–	291 744	1 824	33 184	23 976	31 998	24 444	27 402	18 900	22 944	45 202	57 792	82 056
TSM	(mg/L)	25.0	13.800	15.000	23.000	9.000	17.000	6.000	3.300	8.000	11.500	7.800	3.000	7.000
As	(mg/L)	0.5	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.020	0.001	0.040	0.010	0.100
Cu	(mg/L)	0.3	1.200	0.280	0.040	0.001	0.005	0.010	0.001	0.001	0.010	0.017	0.001	0.010
Ni	(mg/L)	0.5	0.210	0.380	0.330	0.360	0.250	0.290	0.250	0.330	0.130	0.170	0.270	0.240
Pb	(mg/L)	0.2	0.060	0.020	0.010	0.010	0.001	0.010	0.010	0.010	0.001	0.040	–	0.020
Zn	(mg/L)	0.5	0.100	0.030	0.060	0.020	0.020	0.030	0.080	0.010	0.020	0.040	0.060	0.040
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	7.7	7.7	7.6	7.6	7.7	7.7	7.8	7.6	7.5	7.8	7.8	7.6

Boxed data indicates that a monthly effluent quality standard (MEQS) was exceeded for that month.

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	**Les Mines Selbaie**
Company Name	**GENCOR LTD.**
Operator Name	**Billiton Metals Canada Inc.**
City	**180 km North of Rouyn-Noranda**
Province	**Québec**
Region	**Québec**
Latitude/Longitude	**49° 41' N / 78° 57' W**
Sector	**Base Metals**
Product	**Copper-Zinc-Gold-Silver**
Regulatory Status	**Regulations**
Effluent Discharge Point	**Polishing Pond Discharge**
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/day)	–	11 664	3 931	17 496	25 430	24 192	32 717	20 419	18 468	18 972	0	0	0
TSM	(mg/L)	25.0	2.000	7.000	3.000	2.000	2.000	2.000	1.000	3.000	2.000	–	–	–
As	(mg/L)	0.5	–	–	0.025	–	–	–	0.030	–	–	–	–	–
Cu	(mg/L)	0.3	0.020	0.020	0.050	0.020	0.060	0.030	0.040	0.030	0.040	–	–	–
Ni	(mg/L)	0.5	–	–	0.030	–	–	–	0.030	–	–	–	–	–
Pb	(mg/L)	0.2	–	–	0.030	–	–	–	0.030	–	–	–	–	–
Zn	(mg/L)	0.5	0.070	0.060	0.100	0.180	0.450	0.240	0.240	0.200	0.330	–	–	–
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	9.3	9.3	9.2	9.0	8.2	8.7	9.1	9.8	9.2	–	–	–

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	Lockerby
Company Name	FALCONBRIDGE LTD.
Operator Name	Falconbridge Ltd.
City	Whitefish
Province	Ontario
Region	Ontario
Latitude/Longitude	46° 26' N / 81° 19' W
Sector	Base Metals
Product	Copper-Nickel-Cobalt
Regulatory Status	Guidelines
Effluent Discharge Point	
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/day)	–	1 214	1 130	1 213	2 467	1 623	1 424	1 174	1 226	1 340	2 515	1 895	1 633
TSM	(mg/L)	25.0	0.450	0.380	0.580	1.900	0.730	1.400	1.400	1.000	1.200	1.100	0.600	0.410
As	(mg/L)	0.5	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.001	0.001	0.001	0.001
Cu	(mg/L)	0.3	0.003	0.004	0.024	0.015	0.008	0.132	0.004	0.005	0.004	0.005	0.006	0.006
Ni	(mg/L)	0.5	0.134	0.108	0.149	0.379	0.298	0.376	0.160	0.123	0.482	0.494	0.265	0.262
Pb	(mg/L)	0.2	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Zn	(mg/L)	0.5	0.003	0.003	0.005	0.008	0.006	0.010	0.010	0.052	0.009	0.007	0.006	0.009
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	6.9	6.8	6.8	7.0	7.2	7.1	6.9	7.0	7.1	6.8	6.8	6.9

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	**Louvicourt**
Company Name	**NOVICOURT INC.**
Operator Name	**Aur Resources Inc.**
City	**Val d'Or**
Province	**Québec**
Region	**Québec**
Latitude/Longitude	**48° 06' N / 77° 30' W**
Sector	**Base Metals**
Product	**Copper-Zinc-Silver-Gold**
Regulatory Status	**Regulations**
Effluent Discharge Point	**Polishing Pond Discharge**
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/day)	–	–	–	–	–	23 436	5 440	14 952	17 520	19 122	22 320	22 110	22 200
TSM	(mg/L)	25.0	–	–	–	–	5.600	10.000	4.400	8.300	5.500	10.200	4.500	5.200
As	(mg/L)	0.5	–	–	–	–	0.002	–	–	0.006	–	–	0.007	–
Cu	(mg/L)	0.3	–	–	–	–	0.020	–	–	0.020	–	–	0.040	–
Ni	(mg/L)	0.5	–	–	–	–	0.040	–	–	0.030	–	–	0.040	–
Pb	(mg/L)	0.2	–	–	–	–	0.010	–	–	0.010	–	–	0.010	–
Zn	(mg/L)	0.5	–	–	–	–	0.010	–	–	0.030	–	–	0.040	–
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	–	–	–	–	8.5	7.2	8.4	7.8	7.3	7.5	7.7	8.1

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	**McArthur River**
Company Name	**CAMECO CORPORATION**
Operator Name	**Cameco Corporation**
City	**80 km NE of Key Lake**
Province	**Saskatchewan**
Region	**Prairie and Northern**
Latitude/Longitude	**57° 46' N / 105° 03' W**
Sector	**Uranium**
Product	**Uranium**
Regulatory Status	**Regulations**
Effluent Discharge Point	
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/month)	–	–	–	–	–	–	–	–	–	–	–	–	–
TSM	(mg/L)	25.0	1.500	1.000	1.300	1.400	1.600	1.400	1.400	1.100	1.300	1.400	2.400	2.000
As	(mg/L)	0.5	0.003	0.007	0.010	0.006	0.008	0.006	0.005	0.001	0.001	0.003	0.003	0.003
Cu	(mg/L)	0.3	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Ni	(mg/L)	0.5	0.001	0.002	0.001	0.001	0.001	0.003	0.001	0.001	0.001	0.001	0.001	0.001
Pb	(mg/L)	0.2	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
Zn	(mg/L)	0.5	0.014	0.012	0.054	0.008	0.010	0.008	0.011	0.009	0.014	0.012	0.011	0.015
Ra-226	(pCi/L)	10.0	1.210	2.080	2.320	2.320	1.840	2.080	2.160	1.890	2.430	3.590	2.430	2.480
pH		>6.0	7.4	7.3	7.5	7.4	7.4	7.3	7.3	7.3	7.2	7.3	7.4	7.2

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	**McClean Lake**
Company Name	**COGEMA RESOURCES INC.**
Operator Name	**Cogema Resources Inc.**
City	**Wollaston Lake Area**
Province	**Saskatchewan**
Region	**Prairie and Northern**
Latitude/Longitude	**58° 22' N / 103° 50' W**
Sector	**Uranium**
Product	**Uranium**
Regulatory Status	**Regulations**
Effluent Discharge Point	**JEB WTP Effluent**
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/month)	–	125 970	125 086	146 408	148 557	139 927	108 747	119 283	140 457	121 702	110 831	113 335	86 406
TSM	(mg/L)	25.0	3.100	2.300	2.700	3.300	3.600	4.200	4.800	3.900	3.000	4.000	5.000	3.600
As	(mg/L)	0.5	0.042	0.040	0.045	0.036	0.043	0.047	0.042	0.049	0.049	0.061	0.054	0.043
Cu	(mg/L)	0.3	0.003	0.002	0.004	0.003	0.003	0.004	0.002	0.003	0.002	0.002	0.003	0.003
Ni	(mg/L)	0.5	0.047	0.057	0.027	0.031	0.043	0.035	0.033	0.024	0.031	0.037	0.061	0.049
Pb	(mg/L)	0.2	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.002	0.004	0.002	0.001	0.001
Zn	(mg/L)	0.5	0.019	0.019	0.012	0.016	0.018	0.017	0.016	0.015	0.018	0.016	0.015	0.016
Ra-226	(pCi/L)	10.0	2.160	2.920	3.190	2.300	4.000	1.460	0.920	0.700	0.940	1.940	2.020	1.050
pH		>6.0	7.2	7.1	7.2	7.3	7.3	7.2	7.1	7.1	7.0	7.1	7.1	7.1

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	**McClean Lake**
Company Name	**COGEMA RESOURCES INC.**
Operator Name	**Cogema Resources Inc.**
City	**Wollaston Lake Area**
Province	**Saskatchewan**
Region	**Prairie and Northern**
Latitude/Longitude	**58° 22' N / 103° 50' W**
Sector	**Uranium**
Product	**Uranium**
Regulatory Status	**Regulations**
Effluent Discharge Point	**SUE WTP Effluent**
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/month)	–	78 008	85 021	101 410	113 968	137 928	139 514	105 923	117 212	122 635	112 255	92 762	96 598
TSM	(mg/L)	25.0	11.800	6.000	3.600	1.900	2.800	1.600	2.500	2.200	2.000	1.600	2.200	1.500
As	(mg/L)	0.5	0.019	0.047	0.026	0.024	0.015	0.019	0.043	0.039	0.043	0.024	0.036	0.043
Cu	(mg/L)	0.3	0.002	0.001	0.001	0.001	0.001	0.002	0.001	0.002	0.001	0.001	0.004	0.004
Ni	(mg/L)	0.5	0.016	0.031	0.035	0.014	0.012	0.016	0.013	0.006	0.011	0.007	0.009	0.012
Pb	(mg/L)	0.2	0.002	0.003	0.001	0.001	0.002	0.001	0.002	0.001	0.001	0.001	0.001	OVER
Zn	(mg/L)	0.5	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.003	0.003
Ra-226	(pCi/L)	10.0	1.380	1.080	0.860	0.540	0.780	0.430	0.670	0.860	1.050	0.810	0.910	0.860
pH		>6.0	7.2	7.2	7.3	7.3	7.4	7.3	7.2	7.3	7.5	7.3	7.3	7.2

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	**Mont-Wright**
Company Name	**QUÉBEC CARTIER MINING COMPANY**
Operator Name	**Québec Cartier Mining Company**
City	**Fermont**
Province	**Québec**
Region	**Québec**
Latitude/Longitude	**52° 46' N / 67° 20' W**
Sector	**Iron**
Product	**Iron**
Regulatory Status	**Guidelines**
Effluent Discharge Point	**HS-1**
Comments	**As, Cu, Pb, Ni and Zn given for June and August only.**

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/hour)	–	1 300	1 100	2 100	4 150	29 520	16 520	14 650	3 400	12 950	7 575	5 800	2 650
TSM	(mg/L)	25.0	0.800	2.100	7.700	10.800	16.000	2.800	8.600	4.600	10.100	7.900	2.500	4.000
As	(mg/L)	0.5	–	–	–	–	–	0.001	–	0.001	–	–	–	–
Cu	(mg/L)	0.3	–	–	–	–	–	0.010	–	0.002	–	–	–	–
Ni	(mg/L)	0.5	–	–	–	–	–	0.010	–	0.006	–	–	–	–
Pb	(mg/L)	0.2	–	–	–	–	–	0.050	–	0.005	–	–	–	–
Zn	(mg/L)	0.5	–	–	–	–	–	0.010	–	0.011	–	–	–	–
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	7.1	6.8	7.1	6.9	7.0	6.9	7.2	7.5	7.5	7.2	7.5	7.3

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	**Mont-Wright**
Company Name	**QUÉBEC CARTIER MINING COMPANY**
Operator Name	**Québec Cartier Mining Company**
City	**Fermont**
Province	**Québec**
Region	**Québec**
Latitude/Longitude	**52° 46' N / 67° 20' W**
Sector	**Iron**
Product	**Iron**
Regulatory Status	**Guidelines**
Effluent Discharge Point	**LW-1**
Comments	**No discharge from January to April, November and December (frozen). Effluent not accessible by helicopter.**

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/hour)	–	–	–	–	–	–	–	–	–	–	–	–	–
TSM	(mg/L)	25.0	–	–	–	–	–	4.000	–	4.000	–	–	–	–
As	(mg/L)	0.5	–	–	–	–	–	0.001	–	0.001	–	–	–	–
Cu	(mg/L)	0.3	–	–	–	–	–	0.010	–	0.001	–	–	–	–
Ni	(mg/L)	0.5	–	–	–	–	–	0.010	–	0.005	–	–	–	–
Pb	(mg/L)	0.2	–	–	–	–	–	0.050	–	0.005	–	–	–	–
Zn	(mg/L)	0.5	–	–	–	–	–	0.010	–	0.009	–	–	–	–
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	–	–	–	–	–	7.3	–	7.2	–	–	–	–

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	**Mont-Wright**
Company Name	**QUÉBEC CARTIER MINING COMPANY**
Operator Name	**Québec Cartier Mining Company**
City	**Fermont**
Province	**Québec**
Region	**Québec**
Latitude/Longitude	**52° 46' N / 67° 20' W**
Sector	**Iron**
Product	**Iron**
Regulatory Status	**Guidelines**
Effluent Discharge Point	**MS-2**
Comments	**No discharge from January to April, Nov. and Dec. (frozen) -As, Cu, Pb, Ni, Zn given for June and August only.**

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/hour)	–	–	–	–	–	174	120	181	85	102	112	–	–
TSM	(mg/L)	25.0	–	–	–	–	14.000	19.200	**49.800**	6.800	4.200	3.100	–	–
As	(mg/L)	0.5	–	–	–	–	–	0.001	–	0.001	–	–	–	–
Cu	(mg/L)	0.3	–	–	–	–	–	0.020	–	0.004	–	–	–	–
Ni	(mg/L)	0.5	–	–	–	–	–	0.020	–	0.025	–	–	–	–
Pb	(mg/L)	0.2	–	–	–	–	–	0.050	–	0.005	–	–	–	–
Zn	(mg/L)	0.5	–	–	–	–	–	0.040	–	0.017	–	–	–	–
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	–	–	–	–	6.4	6.6	6.9	6.6	6.6	6.5	–	–

Boxed data indicates that a monthly effluent quality standard (MEQS) was exceeded for that month.

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	**Mouska**
Company Name	**CAMBIOR INC.**
Operator Name	**Cambior Inc.**
City	**Destor**
Province	**Québec**
Region	**Québec**
Latitude/Longitude	**48° 17' N / 78° 34' W**
Sector	**Precious Metals**
Product	**Gold**
Regulatory Status	**Regulations**
Effluent Discharge Point	**Mine Water**
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/day)	–	1 958	1 958	1 958	2 074	2 074	1 958	1 987	1 958	2 074	1 958	2 074	1 958
TSM	(mg/L)	25.0	7.000	12.000	12.000	11.000	14.000	14.000	11.000	12.000	5.000	32.000	18.000	12.000
As	(mg/L)	0.5	–	–	–	–	–	–	0.001	–	–	0.002	–	–
Cu	(mg/L)	0.3	0.030	0.060	0.040	0.050	0.060	0.08	0.030	0.040	0.010	0.020	0.040	0.040
Ni	(mg/L)	0.5	–	–	–	–	–	–	0.010	–	–	0.010	–	–
Pb	(mg/L)	0.2	–	–	–	–	–	–	0.010	–	–	0.010	–	–
Zn	(mg/L)	0.5	–	–	–	–	–	–	0.010	–	–	0.010	–	0.010
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	7.7	7.8	7.8	8.1	8.1	8.1	8.1	8.0	8.0	8.0	8.1	7.6

Boxed data indicates that a monthly effluent quality standard (MEQS) was exceeded for that month.

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	**Myra Falls Operations**
Company Name	**BOLIDEN WESTMIN (Canada) LIMITED**
Operator Name	**Westmin Resources Limited**
City	**Campbell River**
Province	**British Columbia**
Region	**Pacific and Yukon**
Latitude/Longitude	**49° 34' N / 125° 35' W**
Sector	**Base Metals**
Product	**Copper-Zinc-Gold-Silver**
Regulatory Status	**Regulations**
Effluent Discharge Point	**3-Runoff**
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/day)	–	0	301	605	0	0	0	0	0	0	0	0	0
TSM	(mg/L)	25.0	–	12.000	17.000	–	–	–	–	–	–	–	–	–
As	(mg/L)	0.5	–	0.200	0.200	–	–	–	–	–	–	–	–	–
Cu	(mg/L)	0.3	–	**0.620**	**1.150**	–	–	–	–	–	–	–	–	–
Ni	(mg/L)	0.5	–	0.050	0.050	–	–	–	–	–	–	–	–	–
Pb	(mg/L)	0.2	–	0.050	0.050	–	–	–	–	–	–	–	–	–
Zn	(mg/L)	0.5	–	**3.590**	**6.640**	–	–	–	–	–	–	–	–	–
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	–	6.4	**5.6**	–	–	–	–	–	–	–	–	–

Boxed data indicates that a monthly effluent quality standard (MEQS) was exceeded for that month.

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	**Myra Falls Operations**
Company Name	**BOLIDEN WESTMIN (Canada) LIMITED**
Operator Name	**Westmin Resources Limited**
City	**Campbell River**
Province	**British Columbia**
Region	**Pacific and Yukon**
Latitude/Longitude	**49° 34' N / 125° 35' W**
Sector	**Base Metals**
Product	**Copper-Zinc-Gold-Silver**
Regulatory Status	**Regulations**
Effluent Discharge Point	**4-Runoff**
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/day)	–	0	52	0	0	0	0	0	0	0	0	0	0
TSM	(mg/L)	25.0	–	**41.000**	–	–	–	–	–	–	–	–	–	–
As	(mg/L)	0.5	–	0.200	–	–	–	–	–	–	–	–	–	–
Cu	(mg/L)	0.3	–	**1.420**	–	–	–	–	–	–	–	–	–	–
Ni	(mg/L)	0.5	–	0.050	–	–	–	–	–	–	–	–	–	–
Pb	(mg/L)	0.2	–	0.050	–	–	–	–	–	–	–	–	–	–
Zn	(mg/L)	0.5	–	**4.530**	–	–	–	–	–	–	–	–	–	–
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	–	6.4	–	–	–	–	–	–	–	–	–	–

Boxed data indicates that a monthly effluent quality standard (MEQS) was exceeded for that month.

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	**Myra Falls Operations**
Company Name	**BOLIDEN WESTMIN (Canada) LIMITED**
Operator Name	**Westmin Resources Limited**
City	**Campbell River**
Province	**British Columbia**
Region	**Pacific and Yukon**
Latitude/Longitude	**49° 34' N / 125° 35' W**
Sector	**Base Metals**
Product	**Copper-Zinc-Gold-Silver**
Regulatory Status	**Regulations**
Effluent Discharge Point	**8-Runoff**
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/day)	–	0	108	153	276	0	0	0	0	0	0	0	0
TSM	(mg/L)	25.0	–	3.000	10.000	13.000	–	–	–	–	–	–	–	–
As	(mg/L)	0.5	–	0.200	0.200	0.200	–	–	–	–	–	–	–	–
Cu	(mg/L)	0.3	–	0.060	**0.390**	0.160	–	–	–	–	–	–	–	–
Ni	(mg/L)	0.5	–	0.050	0.050	0.050	–	–	–	–	–	–	–	–
Pb	(mg/L)	0.2	–	0.050	0.050	0.050	–	–	–	–	–	–	–	–
Zn	(mg/L)	0.5	–	**0.920**	**3.230**	**1.700**	–	–	–	–	–	–	–	–
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	–	6.5	**5.9**	6.4	–	–	–	–	–	–	–	–

Boxed data indicates that a monthly effluent quality standard (MEQS) was exceeded for that month.

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	**Myra Falls Operations**
Company Name	**BOLIDEN WESTMIN (Canada) LIMITED**
Operator Name	**Westmin Resources Limited**
City	**Campbell River**
Province	**British Columbia**
Region	**Pacific and Yukon**
Latitude/Longitude	**49° 34' N / 125° 35' W**
Sector	**Base Metals**
Product	**Copper-Zinc-Gold-Silver**
Regulatory Status	**Regulations**
Effluent Discharge Point	**10A-Runoff**
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/day)	–	0	0	0	2	43	0	0	86	0	0	0	0
TSM	(mg/L)	25.0	–	–	–	**227.000**	**39.000**	–	–	**794.000**	–	–	–	–
As	(mg/L)	0.5	–	–	–	0.200	0.200	–	–	0.200	–	–	–	–
Cu	(mg/L)	0.3	–	–	–	**0.890**	**2.720**	–	–	**63.000**	–	–	–	–
Ni	(mg/L)	0.5	–	–	–	0.050	0.050	–	–	**0.750**	–	–	–	–
Pb	(mg/L)	0.2	–	–	–	**0.210**	0.100	–	–	**0.800**	–	–	–	–
Zn	(mg/L)	0.5	–	–	–	**3.930**	**11.200**	–	–	**261.000**	–	–	–	–
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	–	–	–	**5.2**	**3.2**	–	–	**2.8**	–	–	–	–

Boxed data indicates that a monthly effluent quality standard (MEQS) was exceeded for that month.

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	**Myra Falls Operations**
Company Name	**BOLIDEN WESTMIN (Canada) LIMITED**
Operator Name	**Westmin Resources Limited**
City	**Campbell River**
Province	**British Columbia**
Region	**Pacific and Yukon**
Latitude/Longitude	**49° 34' N / 125° 35' W**
Sector	**Base Metals**
Product	**Copper-Zinc-Gold-Silver**
Regulatory Status	**Regulations**
Effluent Discharge Point	**10B-Runoff**
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/day)	–	0	0	0	43	0	0	0	0	0	0	0	0
TSM	(mg/L)	25.0	–	–	–	**2760.000**	–	–	–	–	–	–	–	–
As	(mg/L)	0.5	–	–	–	0.200	–	–	–	–	–	–	–	–
Cu	(mg/L)	0.3	–	–	–	**1.910**	–	–	–	–	–	–	–	–
Ni	(mg/L)	0.5	–	–	–	0.080	–	–	–	–	–	–	–	–
Pb	(mg/L)	0.2	–	–	–	**1.390**	–	–	–	–	–	–	–	–
Zn	(mg/L)	0.5	–	–	–	**5.090**	–	–	–	–	–	–	–	–
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	–	–	–	6.4	–	–	–	–	–	–	–	–

Boxed data indicates that a monthly effluent quality standard (MEQS) was exceeded for that month.

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	Myra Falls Operations
Company Name	BOLIDEN WESTMIN (Canada) LIMITED
Operator Name	Westmin Resources Limited
City	Campbell River
Province	British Columbia
Region	Pacific and Yukon
Latitude/Longitude	49° 34' N / 125° 35' W
Sector	Base Metals
Product	Copper-Zinc-Gold-Silver
Regulatory Status	Regulations
Effluent Discharge Point	11A-Runoff
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/day)	–	–	13 122	18 727	22 505	22 558	17 748	16 003	18 973	17 764	18 617	43 077	17 693
TSM	(mg/L)	25.0	10.000	10.000	12.000	12.000	12.000	5.000	7.000	12.000	11.000	10.000	11.000	11.000
As	(mg/L)	0.5	–	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200
Cu	(mg/L)	0.3	0.003	0.010	0.010	0.010	0.020	0.010	0.010	0.010	0.010	0.010	0.070	0.010
Ni	(mg/L)	0.5	–	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050
Pb	(mg/L)	0.2	0.005	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050
Zn	(mg/L)	0.5	0.050	0.085	0.160	0.230	0.406	0.235	0.094	0.090	0.082	0.105	**0.716**	0.176
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	10.3	10.3	10.1	10.4	10.1	10.4	10.0	10.1	10.2	10.4	10.4	10.1

Boxed data indicates that a monthly effluent quality standard (MEQS) was exceeded for that month.

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	Myra Falls Operations
Company Name	BOLIDEN WESTMIN (Canada) LIMITED
Operator Name	Westmin Resources Limited
City	Campbell River
Province	British Columbia
Region	Pacific and Yukon
Latitude/Longitude	49° 34' N / 125° 35' W
Sector	Base Metals
Product	Copper-Zinc-Gold-Silver
Regulatory Status	Regulations
Effluent Discharge Point	11B-Runoff
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/day)	–	0	56	108	248	518	2 376	3 909	1 123	999	496	9 158	3 168
TSM	(mg/L)	25.0	–	3.000	3.000	6.000	3.000	3.000	3.000	3.000	3.000	3.000	16.000	3.000
As	(mg/L)	0.5	–	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200
Cu	(mg/L)	0.3	–	0.010	0.020	0.040	0.010	0.010	0.010	0.010	0.010	0.020	0.010	0.010
Ni	(mg/L)	0.5	–	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050
Pb	(mg/L)	0.2	–	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050
Zn	(mg/L)	0.5	–	**0.700**	**1.140**	**1.310**	0.070	0.019	0.018	0.300	0.411	**0.743**	0.049	0.050
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	–	6.6	6.8	6.4	6.7	6.6	7.2	6.4	6.6	6.8	6.7	6.7

Boxed data indicates that a monthly effluent quality standard (MEQS) was exceeded for that month.

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	Myra Falls Operations
Company Name	BOLIDEN WESTMIN (Canada) LIMITED
Operator Name	Westmin Resources Limited
City	Campbell River
Province	British Columbia
Region	Pacific and Yukon
Latitude/Longitude	49° 34' N / 125° 35' W
Sector	Base Metals
Product	Copper-Zinc-Gold-Silver
Regulatory Status	Regulations
Effluent Discharge Point	11C-Runoff
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/day)	–	0	44	168	1 036	362	1 248	2 116	1 350	2 656	1 512	3 164	2 736
TSM	(mg/L)	25.0	–	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	4.000	3.000
As	(mg/L)	0.5	–	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200
Cu	(mg/L)	0.3	–	0.010	0.050	0.050	0.080	0.040	0.030	0.030	0.030	0.030	0.100	0.030
Ni	(mg/L)	0.5	–	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050
Pb	(mg/L)	0.2	–	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050
Zn	(mg/L)	0.5	–	0.906	1.770	1.590	1.984	1.056	0.776	0.858	0.900	1.102	2.010	1.070
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	–	6.5	6.6	6.7	6.5	6.5	6.8	6.6	6.8	6.8	6.4	6.7

Boxed data indicates that a monthly effluent quality standard (MEQS) was exceeded for that month.

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	**Myra Falls Operations**
Company Name	**BOLIDEN WESTMIN (Canada) LIMITED**
Operator Name	**Westmin Resources Limited**
City	**Campbell River**
Province	**British Columbia**
Region	**Pacific and Yukon**
Latitude/Longitude	**49° 34' N / 125° 35' W**
Sector	**Base Metals**
Product	**Copper-Zinc-Gold-Silver**
Regulatory Status	**Regulations**
Effluent Discharge Point	**11D-Runoff**
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/day)	–	0	0	0	0	0	0	0	0	0	0	5	0
TSM	(mg/L)	25.0	–	–	–	–	–	–	–	–	–	–	3.000	–
As	(mg/L)	0.5	–	–	–	–	–	–	–	–	–	–	0.200	–
Cu	(mg/L)	0.3	–	–	–	–	–	–	–	–	–	–	0.050	–
Ni	(mg/L)	0.5	–	–	–	–	–	–	–	–	–	–	0.050	–
Pb	(mg/L)	0.2	–	–	–	–	–	–	–	–	–	–	0.050	–
Zn	(mg/L)	0.5	–	–	–	–	–	–	–	–	–	–	**3.510**	–
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	–	–	–	–	–	–	–	–	–	–	6.0	–

Boxed data indicates that a monthly effluent quality standard (MEQS) was exceeded for that month.

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	**Myra Falls Operations**
Company Name	**BOLIDEN WESTMIN (Canada) LIMITED**
Operator Name	**Westmin Resources Limited**
City	**Campbell River**
Province	**British Columbia**
Region	**Pacific and Yukon**
Latitude/Longitude	**49° 34' N / 125° 35' W**
Sector	**Base Metals**
Product	**Copper-Zinc-Gold-Silver**
Regulatory Status	**Regulations**
Effluent Discharge Point	**12-Seep**
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/day)	–	0	0	0	34	0	0	0	0	0	0	0	0
TSM	(mg/L)	25.0	–	–	–	**518.000**	–	–	–	–	–	–	–	–
As	(mg/L)	0.5	–	–	–	0.200	–	–	–	–	–	–	–	–
Cu	(mg/L)	0.3	–	–	–	**2.300**	–	–	–	–	–	–	–	–
Ni	(mg/L)	0.5	–	–	–	0.050	–	–	–	–	–	–	–	–
Pb	(mg/L)	0.2	–	–	–	**0.490**	–	–	–	–	–	–	–	–
Zn	(mg/L)	0.5	–	–	–	**6.140**	–	–	–	–	–	–	–	–
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	–	–	–	6.9	–	–	–	–	–	–	–	–

Boxed data indicates that a monthly effluent quality standard (MEQS) was exceeded for that month.

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	Myra Falls Operations
Company Name	BOLIDEN WESTMIN (Canada) LIMITED
Operator Name	Westmin Resources Limited
City	Campbell River
Province	British Columbia
Region	Pacific and Yukon
Latitude/Longitude	49° 34' N / 125° 35' W
Sector	Base Metals
Product	Copper-Zinc-Gold-Silver
Regulatory Status	Regulations
Effluent Discharge Point	13A-Runoff
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/day)	–	0	0	15	216	43	0	0	198	86	194	0	0
TSM	(mg/L)	25.0	–	–	**871.000**	**738.000**	**610.000**	–	–	**2 650.000**	**1 130.000**	**255.000**	–	–
As	(mg/L)	0.5	–	–	0.300	0.200	0.200	–	–	0.400	0.200	0.200	–	–
Cu	(mg/L)	0.3	–	–	**2.380**	**1.620**	**2.110**	–	–	**5.050**	**0.500**	**0.510**	–	–
Ni	(mg/L)	0.5	–	–	0.070	0.050	0.050	–	–	0.100	0.050	0.050	–	–
Pb	(mg/L)	0.2	–	–	**0.620**	**0.510**	**0.720**	–	–	**1.300**	**0.380**	**0.250**	–	–
Zn	(mg/L)	0.5	–	–	**6.690**	**4.930**	**6.840**	–	–	**16.400**	**1.960**	**2.020**	–	–
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	–	–	6.8	8.2	8.0	–	–	7.2	7.5	6.5	–	–

Boxed data indicates that a monthly effluent quality standard (MEQS) was exceeded for that month.

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	**Myra Falls Operations**
Company Name	**BOLIDEN WESTMIN (Canada) LIMITED**
Operator Name	**Westmin Resources Limited**
City	**Campbell River**
Province	**British Columbia**
Region	**Pacific and Yukon**
Latitude/Longitude	**49° 34' N / 125° 35' W**
Sector	**Base Metals**
Product	**Copper-Zinc-Gold-Silver**
Regulatory Status	**Regulations**
Effluent Discharge Point	**13B-Runoff**
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/day)	–	0	1	87	119	52	55	7	207	17	60	1 998	0
TSM	(mg/L)	25.0	–	11.000	417.000	49.000	32.000	4.000	3.000	722.000	27.000	6.000	10.000	–
As	(mg/L)	0.5	–	0.300	0.200	0.200	0.200	0.200	0.200	0.300	0.200	0.200	0.200	–
Cu	(mg/L)	0.3	–	0.030	0.720	0.090	0.040	0.020	0.030	2.380	0.090	0.040	0.060	–
Ni	(mg/L)	0.5	–	0.080	0.060	0.050	0.050	0.050	0.050	0.080	0.050	0.050	0.050	–
Pb	(mg/L)	0.2	–	0.080	0.260	0.060	0.070	0.050	0.050	0.620	0.060	0.050	0.050	–
Zn	(mg/L)	0.5	–	0.330	3.140	0.430	0.320	0.217	0.235	7.890	0.893	0.988	0.599	–
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	–	7.0	6.6	7.0	7.3	7.4	7.4	6.7	7.0	7.0	6.5	–

Boxed data indicates that a monthly effluent quality standard (MEQS) was exceeded for that month.

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	**Myra Falls Operations**
Company Name	**BOLIDEN WESTMIN (Canada) LIMITED**
Operator Name	**Westmin Resources Limited**
City	**Campbell River**
Province	**British Columbia**
Region	**Pacific and Yukon**
Latitude/Longitude	**49° 34' N / 125° 35' W**
Sector	**Base Metals**
Product	**Copper-Zinc-Gold-Silver**
Regulatory Status	**Regulations**
Effluent Discharge Point	**13C-Seep**
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/day)	–	0	4	5 184	0	0	0	0	0	0	0	0	0
TSM	(mg/L)	25.0	–	3.000	**63.000**	–	–	–	–	–	–	–	–	–
As	(mg/L)	0.5	–	0.200	0.200	–	–	–	–	–	–	–	–	–
Cu	(mg/L)	0.3	–	0.040	0.250	–	–	–	–	–	–	–	–	–
Ni	(mg/L)	0.5	–	0.050	0.050	–	–	–	–	–	–	–	–	–
Pb	(mg/L)	0.2	–	0.050	0.050	–	–	–	–	–	–	–	–	–
Zn	(mg/L)	0.5	–	**0.770**	**0.540**	–	–	–	–	–	–	–	–	–
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	–	**3.0**	6.3	–	–	–	–	–	–	–	–	–

Boxed data indicates that a monthly effluent quality standard (MEQS) was exceeded for that month.

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	**Myra Falls Operations**
Company Name	**BOLIDEN WESTMIN (Canada) LIMITED**
Operator Name	**Westmin Resources Limited**
City	**Campbell River**
Province	**British Columbia**
Region	**Pacific and Yukon**
Latitude/Longitude	**49° 34' N / 125° 35' W**
Sector	**Base Metals**
Product	**Copper-Zinc-Gold-Silver**
Regulatory Status	**Regulations**
Effluent Discharge Point	**13D-Runoff**
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/day)	–	0	0	0	129	13	0	0	0	0	0	0	0
TSM	(mg/L)	25.0	–	–	–	**588.000**	**95.000**	–	–	–	–	–	–	–
As	(mg/L)	0.5	–	–	–	0.200	0.200	–	–	–	–	–	–	–
Cu	(mg/L)	0.3	–	–	–	**1.320**	**4.000**	–	–	–	–	–	–	–
Ni	(mg/L)	0.5	–	–	–	0.050	0.170	–	–	–	–	–	–	–
Pb	(mg/L)	0.2	–	–	–	**0.440**	0.050	–	–	–	–	–	–	–
Zn	(mg/L)	0.5	–	–	–	**3.420**	**14.200**	–	–	–	–	–	–	–
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	–	–	–	**3.1**	**3.0**	–	–	–	–	–	–	–

Boxed data indicates that a monthly effluent quality standard (MEQS) was exceeded for that month.

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	**Myra Falls Operations**
Company Name	**BOLIDEN WESTMIN (Canada) LIMITED**
Operator Name	**Westmin Resources Limited**
City	**Campbell River**
Province	**British Columbia**
Region	**Pacific and Yukon**
Latitude/Longitude	**49° 34' N / 125° 35' W**
Sector	**Base Metals**
Product	**Copper-Zinc-Gold-Silver**
Regulatory Status	**Regulations**
Effluent Discharge Point	**14A-Seep**
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/day)	–	0	0	1	86	5	0	0	8	13	0	0	0
TSM	(mg/L)	25.0	–	–	**256.000**	**103.000**	20.000	–	–	**262.000**	**83.000**	–	–	–
As	(mg/L)	0.5	–	–	0.200	0.200	0.200	–	–	0.200	0.200	–	–	–
Cu	(mg/L)	0.3	–	–	**0.410**	**0.570**	0.010	–	–	**1.480**	**1.150**	–	–	–
Ni	(mg/L)	0.5	–	–	0.050	0.050	0.005	–	–	0.050	0.050	–	–	–
Pb	(mg/L)	0.2	–	–	0.180	0.060	0.050	–	–	0.110	0.050	–	–	–
Zn	(mg/L)	0.5	–	–	**1.110**	**1.040**	**2.600**	–	–	**4.360**	**4.060**	–	–	–
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	–	–	**4.4**	**2.8**	**3.3**	–	–	**3.0**	**4.0**	–	–	–

Boxed data indicates that a monthly effluent quality standard (MEQS) was exceeded for that month.

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	**Myra Falls Operations**
Company Name	**BOLIDEN WESTMIN (Canada) LIMITED**
Operator Name	**Westmin Resources Limited**
City	**Campbell River**
Province	**British Columbia**
Region	**Pacific and Yukon**
Latitude/Longitude	**49° 34' N / 125° 35' W**
Sector	**Base Metals**
Product	**Copper-Zinc-Gold-Silver**
Regulatory Status	**Regulations**
Effluent Discharge Point	**15A-Runoff**
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/day)	–	0	86	172	216	70	5	0	0	0	0	6 912	0
TSM	(mg/L)	25.0	–	3.000	3.000	3.000	3.000	4.000	-	-	-	-	5.000	–
As	(mg/L)	0.5	–	0.200	0.200	0.200	0.200	0.200	–	–	–	–	0.200	–
Cu	(mg/L)	0.3	–	0.010	0.010	0.010	0.010	0.010	–	–	–	–	0.010	–
Ni	(mg/L)	0.5	–	0.050	0.050	0.050	0.050	0.050	–	–	–	–	0.050	–
Pb	(mg/L)	0.2	–	0.050	0.050	0.060	0.050	0.050	–	–	–	–	0.050	–
Zn	(mg/L)	0.5	–	0.010	0.005	0.010	0.006	0.005	–	–	–	–	0.011	–
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	–	6.6	6.4	6.4	6.7	7.0	–	–	–	–	6.2	–

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	**Myra Falls Operations**
Company Name	**BOLIDEN WESTMIN (Canada) LIMITED**
Operator Name	**Westmin Resources Limited**
City	**Campbell River**
Province	**British Columbia**
Region	**Pacific and Yukon**
Latitude/Longitude	**49° 34' N / 125° 35' W**
Sector	**Base Metals**
Product	**Copper-Zinc-Gold-Silver**
Regulatory Status	**Regulations**
Effluent Discharge Point	**17A-Runoff**
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/day)	–	0	86	734	1 177	150	0	0	0	0	0	10 800	0
TSM	(mg/L)	25.0	–	3.000	3.000	3.000	3.000	–	–	–	–	–	3.000	–
As	(mg/L)	0.5	–	0.200	0.200	0.200	0.200	–	–	–	–	–	0.200	–
Cu	(mg/L)	0.3	–	0.010	0.010	0.010	0.010	–	–	–	–	–	0.010	–
Ni	(mg/L)	0.5	–	0.050	0.050	0.050	0.050	–	–	–	–	–	0.050	–
Pb	(mg/L)	0.2	–	0.050	0.050	0.050	0.050	–	–	–	–	–	0.050	–
Zn	(mg/L)	0.5	–	0.040	0.048	0.040	0.038	–	–	–	–	–	0.131	–
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0		6.4	6.5	6.5	6.5	–	–	–	–	–	5.9	

Boxed data indicates that a monthly effluent quality standard (MEQS) was exceeded for that month.

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	**Myra Falls Operations**
Company Name	**BOLIDEN WESTMIN (Canada) LIMITED**
Operator Name	**Westmin Resources Limited**
City	**Campbell River**
Province	**British Columbia**
Region	**Pacific and Yukon**
Latitude/Longitude	**49° 34' N / 125° 35' W**
Sector	**Base Metals**
Product	**Copper-Zinc-Gold-Silver**
Regulatory Status	**Regulations**
Effluent Discharge Point	**19-Runoff**
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/day)	–	0	0	0	43	0	0	0	0	0	0	0	0
TSM	(mg/L)	25.0	–	–	–	14.000	–	–	–	–	–	–	–	–
As	(mg/L)	0.5	–	–	–	0.200	–	–	–	–	–	–	–	–
Cu	(mg/L)	0.3	–	–	–	0.070	–	–	–	–	–	–	–	–
Ni	(mg/L)	0.5	–	–	–	0.050	–	–	–	–	–	–	–	–
Pb	(mg/L)	0.2	–	–	–	0.050	–	–	–	–	–	–	–	–
Zn	(mg/L)	0.5	–	–	–	0.340	–	–	–	–	–	–	–	–
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	–	–	–	2.8	–	–	–	–	–	–	–	–

Boxed data indicates that a monthly effluent quality standard (MEQS) was exceeded for that month.

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	**Myra Falls Operations**
Company Name	**BOLIDEN WESTMIN (Canada) LIMITED**
Operator Name	**Westmin Resources Limited**
City	**Campbell River**
Province	**British Columbia**
Region	**Pacific and Yukon**
Latitude/Longitude	**49° 34' N / 125° 35' W**
Sector	**Base Metals**
Product	**Copper-Zinc-Gold-Silver**
Regulatory Status	**Regulations**
Effluent Discharge Point	**19A-Runoff**
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/day)	–	–	–	–	–	–	–	–	0	–	–	–	–
TSM	(mg/L)	25.0	3.000	3.000	5.000	3.000	4.000	**27.000**	4.000	–	3.000	4.000	**36.000**	3.0
As	(mg/L)	0.5	–	0.200	0.200	0.200	0.200	0.200	0.200	–	0.200	0.200	0.200	–
Cu	(mg/L)	0.3	0.010	0.010	0.080	0.010	0.010	0.010	0.010	–	0.010	0.010	0.013	0.011
Ni	(mg/L)	0.5	–	0.050	0.050	0.050	0.050	0.050	0.050	–	0.050	0.050	0.050	–
Pb	(mg/L)	0.2	0.001	0.050	0.050	0.050	0.050	0.050	0.050	–	0.050	0.050	0.050	0.001
Zn	(mg/L)	0.5	0.404	0.310	**0.893**	0.380	**0.507**	0.249	0.188	–	0.248	0.368	**3.260**	0.442
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	6.4	6.7	6.2	6.5	6.8	6.7	6.4	–	6.5	6.5	6.2	6.7

Boxed data indicates that a monthly effluent quality standard (MEQS) was exceeded for that month.

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	**Myra Falls Operations**
Company Name	**BOLIDEN WESTMIN (Canada) LIMITED**
Operator Name	**Westmin Resources Limited**
City	**Campbell River**
Province	**British Columbia**
Region	**Pacific and Yukon**
Latitude/Longitude	**49° 34' N / 125° 35' W**
Sector	**Base Metals**
Product	**Copper-Zinc-Gold-Silver**
Regulatory Status	**Regulations**
Effluent Discharge Point	**20-Seep**
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/day)	–	0	0	1	17	8	0	0	0	0	0	86	0
TSM	(mg/L)	25.0	–	–	23.000	**45.000**	**26.000**	–	–	–	–	–	0.900	–
As	(mg/L)	0.5	–	–	0.200	0.200	0.200	–	–	–	–	–	0.200	–
Cu	(mg/L)	0.3	–	–	**2.250**	0.100	0.060	–	–	–	–	–	**0.750**	–
Ni	(mg/L)	0.5	–	–	0.050	0.050	0.050	–	–	–	–	–	0.050	–
Pb	(mg/L)	0.2	–	–	0.080	0.070	0.050	–	–	–	–	–	0.050	–
Zn	(mg/L)	0.5	–	–	**23.100**	**0.660**	**0.757**	–	–	–	–	–	**22.700**	–
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	–	–	**5.4**	**5.9**	6.3	–	–	–	–	–	**5.8**	–

Boxed data indicates that a monthly effluent quality standard (MEQS) was exceeded for that month.

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	**Myra Falls Operations**
Company Name	**BOLIDEN WESTMIN (Canada) LIMITED**
Operator Name	**Westmin Resources Limited**
City	**Campbell River**
Province	**British Columbia**
Region	**Pacific and Yukon**
Latitude/Longitude	**49° 34' N / 125° 35' W**
Sector	**Base Metals**
Product	**Copper-Zinc-Gold-Silver**
Regulatory Status	**Regulations**
Effluent Discharge Point	**23-Seep**
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/day)	–	0	0	0	172	17	0	0	0	0	0	0	0
TSM	(mg/L)	25.0	–	–	–	**730.000**	**129.000**	**131.000**	–	–	–	–	–	–
As	(mg/L)	0.5	–	–	–	0.200	0.200	0.200	–	–	–	–	–	–
Cu	(mg/L)	0.3	–	–	–	**1.090**	**3.720**	**5.180**	–	–	–	–	–	–
Ni	(mg/L)	0.5	–	–	–	0.050	0.160	0.160	–	–	–	–	–	–
Pb	(mg/L)	0.2	–	–	–	**0.520**	0.100	0.060	–	–	–	–	–	–
Zn	(mg/L)	0.5	–	–	–	**3.190**	**16.000**	**24.700**	–	–	–	–	–	–
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	–	–	–	**3.3**	**3.4**	**3.2**	–	–	–	–	–	–

Boxed data indicates that a monthly effluent quality standard (MEQS) was exceeded for that month.

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	**Myra Falls Operations**
Company Name	**BOLIDEN WESTMIN (Canada) LIMITED**
Operator Name	**Westmin Resources Limited**
City	**Campbell River**
Province	**British Columbia**
Region	**Pacific and Yukon**
Latitude/Longitude	**49° 34' N / 125° 35' W**
Sector	**Base Metals**
Product	**Copper-Zinc-Gold-Silver**
Regulatory Status	**Regulations**
Effluent Discharge Point	**25-Runoff**
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/day)	–	0	43	95	0	0	0	0	0	0	0	0	0
TSM	(mg/L)	25.0	–	3 900.000	74.000	–	–	–	–	–	–	–	–	–
As	(mg/L)	0.5	–	0.200	0.200	–	–	–	–	–	–	–	–	–
Cu	(mg/L)	0.3	–	1.970	0.150	–	–	–	–	–	–	–	–	–
Ni	(mg/L)	0.5	–	0.050	0.050	–	–	–	–	–	–	–	–	–
Pb	(mg/L)	0.2	–	1.090	0.050	–	–	–	–	–	–	–	–	–
Zn	(mg/L)	0.5	–	6.240	1.380	–	–	–	–	–	–	–	–	–
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	–	7.5	6.3	–	–	–	–	–	–	–	–	–

Boxed data indicates that a monthly effluent quality standard (MEQS) was exceeded for that month.

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	**Myra Falls Operations**
Company Name	**BOLIDEN WESTMIN (Canada) LIMITED**
Operator Name	**Westmin Resources Limited**
City	**Campbell River**
Province	**British Columbia**
Region	**Pacific and Yukon**
Latitude/Longitude	**49° 34' N / 125° 35' W**
Sector	**Base Metals**
Product	**Copper-Zinc-Gold-Silver**
Regulatory Status	**Regulations**
Effluent Discharge Point	**26-Seep**
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/day)	–	0	0	0	0	0	0	0	0	0	0	86	0
TSM	(mg/L)	25.0	–	–	–	–	–	–	–	–	–	–	**49.000**	–
As	(mg/L)	0.5	–	–	–	–	–	–	–	–	–	–	0.200	–
Cu	(mg/L)	0.3	–	–	–	–	–	–	–	–	–	–	**9.730**	–
Ni	(mg/L)	0.5	–	–	–	–	–	–	–	–	–	–	0.050	–
Pb	(mg/L)	0.2	–	–	–	–	–	–	–	–	–	–	0.170	–
Zn	(mg/L)	0.5	–	–	–	–	–	–	–	–	–	–	**30.500**	–
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	–	–	–	–	–	–	–	–	–	–	**2.5**	–

Boxed data indicates that a monthly effluent quality standard (MEQS) was exceeded for that month.

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	Myra Falls Operations
Company Name	BOLIDEN WESTMIN (Canada) LIMITED
Operator Name	Westmin Resources Limited
City	Campbell River
Province	British Columbia
Region	Pacific and Yukon
Latitude/Longitude	49° 34' N / 125° 35' W
Sector	Base Metals
Product	Copper-Zinc-Gold-Silver
Regulatory Status	Regulations
Effluent Discharge Point	27-Seep
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/day)	–	0	1	0	0	21	0	0	0	0	0	0	0
TSM	(mg/L)	25.0	–	–	3.000	4.000	3.000	–	–	–	–	–	–	–
As	(mg/L)	0.5	–	0.200	0.200	0.200	**4.800**	–	0.200	–	–	–	–	–
Cu	(mg/L)	0.3	–	**1.020**	**1.000**	**1.045**	**0.690**	–	**0.750**	–	–	–	–	–
Ni	(mg/L)	0.5	–	0.050	0.050	0.050	0.050	–	0.050	–	–	–	–	–
Pb	(mg/L)	0.2	–	0.050	0.050	0.050	0.050	–	0.050	–	–	–	–	–
Zn	(mg/L)	0.5	–	**20.100**	**20.100**	**19.600**	**13.940**	–	**15.400**	–	–	–	–	–
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	–	**4.6**	**4.3**	**4.5**	**4.8**	–	**4.5**	–	–	–	–	–

Boxed data indicates that a monthly effluent quality standard (MEQS) was exceeded for that month.

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	**Nanisivik**
Company Name	**BREAKWATER RESOURCES LTD.**
Operator Name	**Breakwater Resources Ltd.**
City	**750 km North of Arctic Circle, Baffin Island**
Province	**Nunavut**
Region	**Prairie and Northern**
Latitude/Longitude	**73° 03' N / 84° 25' W**
Sector	**Base Metals**
Product	**Zinc-Lead-Silver**
Regulatory Status	**Guidelines**
Effluent Discharge Point	**West Twin Lake Decant**
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/month)	–	0	0	0	0	0	209 725	294 350	22 905	75 525	0	0	0
TSM	(mg/L)	25.0	–	–	–	–	–	0.900	3.400	2.200	0.400	–	–	–
As	(mg/L)	0.5	–	–	–	–	–	–	–	–	–	–	–	–
Cu	(mg/L)	0.3	–	–	–	–	–	–	–	–	–	–	–	–
Ni	(mg/L)	0.5	–	–	–	–	–	–	–	–	–	–	–	–
Pb	(mg/L)	0.2	–	–	–	–	–	0.050	0.085	0.095	0.097	–	–	–
Zn	(mg/L)	0.5	–	–	–	–	–	0.030	0.035	0.036	0.043	–	–	–
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	–	–	–	–	–	8.6	7.8	7.5	7.7	–	–	–

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	Niobec
Company Name	CAMBIOR INC.
Operator Name	Teck Corporation
City	St-Honore
Province	Québec
Region	Québec
Latitude/Longitude	48° 32' N / 71° 09' W
Sector	Base Metals
Product	Niobium
Regulatory Status	Regulations
Effluent Discharge Point	Mine Water
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/day)	–	3 135	5 651	4 727	14 320	6 160	5 816	7 693	–	3 354	6 439	6 704	4 924
TSM	(mg/L)	25.0	5.000	6.000	8.000	16.000	12.000	7.000	5.000	–	9.000	5.000	5.000	7.000
As	(mg/L)	0.5	–	–	–	–	–	–	–	–	–	–	–	–
Cu	(mg/L)	0.3	0.010	0.010	0.010	0.007	0.010	0.010	0.010	–	0.010	0.020	0.010	0.010
Ni	(mg/L)	0.5	–	0.020	–	–	–	–	0.020	–	–	–	–	–
Pb	(mg/L)	0.2	0.030	0.030	0.030	0.030	0.030	0.030	0.030	–	0.040	0.040	0.040	0.040
Zn	(mg/L)	0.5	–	0.060	–	–	–	–	0.010	–	–	–	–	–
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	7.7	7.6	7.6	7.6	7.9	8.0	8.1	–	7.9	7.9	7.8	7.7

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	**Niobec**
Company Name	**CAMBIOR INC.**
Operator Name	**Teck Corporation**
City	**St-Honoré**
Province	**Québec**
Region	**Québec**
Latitude/Longitude	**48° 32' N / 71° 09' W**
Sector	**Base Metals**
Product	**Niobium**
Regulatory Status	**Regulations**
Effluent Discharge Point	**Tailings Pond Discharge**
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/day)	–	1 980	2 000	1 975	1 750	1 760	1 925	1 800	1 533	1 875	2 080	1 936	2 075
TSM	(mg/L)	25.0	17.000	18.000	16.000	16.000	15.000	15.000	17.000	7.000	14.000	18.000	18.000	18.000
As	(mg/L)	0.5	–	–	–	–	–	–	–	–	–	–	–	–
Cu	(mg/L)	0.3	0.050	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010
Ni	(mg/L)	0.5	–	0.020	–	–	–	–	0.020	–	–	–	–	–
Pb	(mg/L)	0.2	0.030	0.030	0.030	0.030	0.030	0.030	0.030	0.040	0.050	0.060	0.040	0.040
Zn	(mg/L)	0.5	–	0.060	–	–	–	–	0.020	–	–	–	–	–
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	7.6	7.5	7.5	7.8	7.8	7.8	7.9	7.8	7.8	7.8	7.8	7.8

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	Nolin Creek Treatment Plant
Company Name	INCO LIMITED
Operator Name	INCO Limited
City	Copper Cliff
Province	Ontario
Region	Ontario
Latitude/Longitude	46° 30' N / 81° 00' W
Sector	Base Metals
Product	Nickel-Copper-Cobalt-Platinum
Regulatory Status	Guidelines
Effluent Discharge Point	
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/day)	–	7 493	11 000	14 640	25 770	22 160	21 540	15 180	8 956	18 440	22 010	21 630	24 930
TSM	(mg/L)	25.0	3.400	3.400	3.300	5.300	3.500	3.700	3.500	3.100	3.400	4.300	4.100	3.000
As	(mg/L)	0.5	0.002	0.001	–	0.001	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
Cu	(mg/L)	0.3	0.026	0.025	0.046	0.161	0.076	0.038	0.005	0.011	0.056	0.013	0.100	0.075
Ni	(mg/L)	0.5	0.310	0.330	0.310	**0.670**	0.270	0.260	0.070	0.120	0.210	**0.590**	0.450	0.300
Pb	(mg/L)	0.2	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020
Zn	(mg/L)	0.5	0.014	0.009	0.025	0.012	0.006	0.007	0.008	0.005	0.011	0.015	0.016	0.013
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	8.3	8.3	8.5	8.3	8.2	8.4	8.5	8.3	8.6	8.3	7.8	8.5

Boxed data indicates that a monthly effluent quality standard (MEQS) was exceeded for that month.

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	**Polaris**
Company Name	**COMINCO LTD.**
Operator Name	**Cominco Ltd.**
City	**Little Cornwallis Island**
Province	**Nunavut**
Region	**Prairie and Northern**
Latitude/Longitude	**75° 23' N / 96° 56' W**
Sector	**Base Metals**
Product	**Lead-Zinc**
Regulatory Status	**Regulations**
Effluent Discharge Point	**Sample Station 262-7.000**
Comments	**Discharged only in July, August and September**

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/month)	–	0	0	0	0	0	0	424 027	1 125 660	1 404 758	0	0	0
TSM	(mg/L)	25.0	–	–	–	–	–	–	1.000	1.000	1.000	–	–	–
As	(mg/L)	0.5	–	–	–	–	–	–	0.001	0.001	0.001	–	–	–
Cu	(mg/L)	0.3	–	–	–	–	–	–	0.001	0.001	0.001	–	–	–
Ni	(mg/L)	0.5	–	–	–	–	–	–	0.004	0.002	0.002	–	–	–
Pb	(mg/L)	0.2	–	–	–	–	–	–	0.004	0.004	0.002	–	–	–
Zn	(mg/L)	0.5	–	–	–	–	–	–	0.100	0.120	0.181	–	–	–
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	–	–	–	–	–	–	7.8	7.6	7.9	–	–	–

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	**Principale**
Company Name	**CAMPBELL RESOURCES INC.**
Operator Name	**Meston Resources Inc.**
City	**Chibougamau**
Province	**Québec**
Region	**Québec**
Latitude/Longitude	**49° 51' N / 74° 19.5' W**
Sector	**Precious Metals**
Product	**Gold-Copper**
Regulatory Status	**Guidelines**
Effluent Discharge Point	**Effluent No. 2**
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/day)	–	0	0	0	0	–	–	–	–	–	–	–	0
TSM	(mg/L)	25.0	–	–	–	–	0.800	0.200	2.400	1.600	2.400	4.000	4.000	–
As	(mg/L)	0.5	–	–	–	–	–	–	–	–	–	–	–	–
Cu	(mg/L)	0.3	–	–	–	–	0.120	0.010	0.020	0.050	0.040	0.030	0.030	–
Ni	(mg/L)	0.5	–	–	–	–	–	–	–	–	–	–	–	–
Pb	(mg/L)	0.2	–	–	–	–	–	–	–	–	–	–	–	–
Zn	(mg/L)	0.5	–	–	–	–	–	–	–	–	–	–	–	–
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	–	–	–	–	7.4	7.6	8.4	6.8	7.6	7.8	7.6	–

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	**Rabbit Lake**
Company Name	**CAMECO CORPORATION**
Operator Name	**Cameco Corporation**
City	**Saskatoon**
Province	**Saskatchewan**
Region	**Prairie and Northern**
Latitude/Longitude	**58° 10' N / 103° 40' W**
Sector	**Uranium**
Product	**Uranium**
Regulatory Status	**Regulations**
Effluent Discharge Point	**Treated Mill Effluent**
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/month)	–	206 518	186 533	206 518	198 775	206 518	199 856	206 518	206 518	199 856	206 518	199 856	206 518
TSM	(mg/L)	25.0	1.510	1.510	1.510	2.554	1.510	1.510	1.510	1.510	1.510	1.510	1.510	1.510
As	(mg/L)	0.5	0.035	0.035	0.035	0.063	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035
Cu	(mg/L)	0.3	0.002	0.002	0.002	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
Ni	(mg/L)	0.5	0.055	0.055	0.055	0.111	0.055	0.055	0.055	0.055	0.055	0.055	0.055	0.055
Pb	(mg/L)	0.2	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
Zn	(mg/L)	0.5	0.006	0.006	0.006	0.005	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006
Ra-226	(pCi/L)	10.0	0.220	0.220	0.220	0.320	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.140
pH		>6.0	7.2	7.2	7.2	7.2	–	7.2	7.2	7.2	7.2	7.2	7.2	7.2

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	**Ruttan**
Company Name	**HUDSON BAY MINING AND SMELTING CO., LTD**
Operator Name	**Hudson Bay Mining and Smelting Co. Ltd**
City	**20 km East of Leaf Rapids**
Province	**Manitoba**
Region	**Prairie and Northern**
Latitude/Longitude	**56° 40' N / 99° 38' W**
Sector	**Base Metals**
Product	**Copper-Zinc**
Regulatory Status	**Guidelines**
Effluent Discharge Point	**Brehaut Lake Outfall**
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/month)	–	0	0	0	0	1 770 336	2 710 584	2 801 606	1 782 922	2 944 901	2 790 000	0	0
TSM	(mg/L)	25.0	–	–	–	–	3.000	3.250	1.000	3.670	1.750	1.330	–	–
As	(mg/L)	0.5	–	–	–	–	0.002	0.003	0.004	0.001	0.002	0.002	–	–
Cu	(mg/L)	0.3	–	–	–	–	0.010	0.010	0.010	0.010	0.010	0.010	–	–
Ni	(mg/L)	0.5	–	–	–	–	0.010	0.010	0.010	0.010	0.010	0.010	–	–
Pb	(mg/L)	0.2	–	–	–	–	0.040	0.040	0.040	0.040	0.040	0.040	–	–
Zn	(mg/L)	0.5	–	–	–	–	0.290	0.270	0.130	0.060	0.030	0.050	–	–
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	–	–	–	–	7.6	7.4	7.5	7.5	7.5	7.4	–	–

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	**Scully**
Company Name	**WABUSH MINES**
Operator Name	**Cleveland-Cliffs Inc.**
City	**Wabush**
Province	**Newfoundland**
Region	**Atlantic**
Latitude/Longitude	**52° 55' N / 67° 10' W**
Sector	**Iron**
Product	**Iron**
Regulatory Status	**Guidelines**
Effluent Discharge Point	**East Pit No.1**
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/month)	–	–	–	–	–	–	–	–	–	–	–	–	–
TSM	(mg/L)	25.0	–	1.500	0.700	–	10.400	1.000	–	0.400	–	0.500	–	–
As	(mg/L)	0.5	–	–	–	–	–	–	–	–	–	–	–	–
Cu	(mg/L)	0.3	–	–	–	–	–	–	–	–	–	–	–	–
Ni	(mg/L)	0.5	–	–	–	–	–	–	–	–	–	–	–	–
Pb	(mg/L)	0.2	–	–	–	–	–	–	–	–	–	–	–	–
Zn	(mg/L)	0.5	–	–	–	–	–	–	–	–	–	–	–	–
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	7.4	7.4	7.1	7.3	7.5	7.6	7.7	7.6	7.8	7.4	7.4	7.6

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	Scully
Company Name	WABUSH MINES
Operator Name	Cleveland-Cliffs Inc.
City	Wabush
Province	Newfoundland
Region	Atlantic
Latitude/Longitude	52° 55' N / 67° 10' W
Sector	Iron
Product	Iron
Regulatory Status	Guidelines
Effluent Discharge Point	East Pit No. 2
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/month)	–	–	–	–	–	–	–	–	–	–	–	–	–
TSM	(mg/L)	25.0	3.500	2.300	0.300	1.100	4.700	2.600	1.200	1.400	–	0.800	–	–
As	(mg/L)	0.5	–	–	–	–	–	–	–	–	–	–	–	–
Cu	(mg/L)	0.3	–	–	–	–	–	–	–	–	–	–	–	–
Ni	(mg/L)	0.5	–	–	–	–	–	–	–	–	–	–	–	–
Pb	(mg/L)	0.2	–	–	–	–	–	–	–	–	–	–	–	–
Zn	(mg/L)	0.5	–	–	–	–	–	–	–	–	–	–	–	–
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	6.9	7.1	7.1	7.1	7.2	7.3	7.4	7.2	7.3	7.3	6.9	7.0

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	Scully
Company Name	WABUSH MINES
Operator Name	Cleveland-Cliffs Inc.
City	Wabush
Province	Newfoundland
Region	Atlantic
Latitude/Longitude	52° 55' N / 67° 10' W
Sector	Iron
Product	Iron
Regulatory Status	Guidelines
Effluent Discharge Point	South Pit
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/month)	-	-	-	-	-	-	-	-	-	-	-	-	-
TSM	(mg/L)	25.0	4.000	2.300	1.000	8.200	0.500	21.400	**43.000**	3.600	-	1.800	-	-
As	(mg/L)	0.5	-	-	-	-	-	-	-	-	-	-	-	-
Cu	(mg/L)	0.3	-	-	-	-	-	-	-	-	-	-	-	-
Ni	(mg/L)	0.5	-	-	-	-	-	-	-	-	-	-	-	-
Pb	(mg/L)	0.2	-	-	-	-	-	-	-	-	-	-	-	-
Zn	(mg/L)	0.5	-	-	-	-	-	-	-	-	-	-	-	-
Ra-226	(pCi/L)	10.0	-	-	-	-	-	-	-	-	-	-	-	-
pH		>6.0	7.5	7.3	7.3	7.3	7.4	7.4	7.4	7.3	7.3	7.4	7.1	7.2

Boxed data indicates that a monthly effluent quality standard (MEQS) was exceeded for that month.

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	Scully
Company Name	WABUSH MINES
Operator Name	Cleveland-Cliffs Inc.
City	Wabush
Province	Newfoundland
Region	Atlantic
Latitude/Longitude	52° 55' N / 67° 10' W
Sector	Iron
Product	Iron
Regulatory Status	Guidelines
Effluent Discharge Point	West Pit No.5
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/month)	–	0	0	0	0	–	–	–	–	–	–	–	–
TSM	(mg/L)	25.0	–	–	–	–	16.700	8.200	19.000	0.600	1.500	0.500	3.700	7.000
As	(mg/L)	0.5	–	–	–	–	–	–	–	–	–	–	–	–
Cu	(mg/L)	0.3	–	–	–	–	–	–	–	–	–	–	–	–
Ni	(mg/L)	0.5	–	–	–	–	–	–	–	–	–	–	–	–
Pb	(mg/L)	0.2	–	–	–	–	–	–	–	–	–	–	–	–
Zn	(mg/L)	0.5	–	–	–	–	–	–	–	–	–	–	–	–
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	–	–	–	–	7.2	7.0	7.1	6.8	7.6	7.0	6.7	6.7

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	**Stall/Snow Lake Mill**
Company Name	**HUDSON BAY MINING AND SMELTING CO., LTD.**
Operator Name	**Hudson Bay Mining and Smelting Co. Ltd.**
City	**Snow Lake**
Province	**Manitoba**
Region	**Prairie and Northern**
Latitude/Longitude	
Sector	**Base Metals**
Product	**Zinc**
Regulatory Status	**Guidelines**
Effluent Discharge Point	**Treatment Plant Effluent**
Comments	**No processing in Chisel North. Ore is trucked to Stall/Snow Lake Mill for processing.**

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/month)	–	0	0	0	0	0	359 000	1 427 000	1 228 000	0	0	0	0
TSM	(mg/L)	25.0	–	–	–	–	–	4.000	4.000	1.000	–	–	–	–
As	(mg/L)	0.5	–	–	–	–	–	0.004	0.003	0.002	–	–	–	–
Cu	(mg/L)	0.3	–	–	–	–	–	0.020	0.010	0.010	–	–	–	–
Ni	(mg/L)	0.5	–	–	–	–	–	0.010	0.010	0.010	–	–	–	–
Pb	(mg/L)	0.2	–	–	–	–	–	0.040	0.040	0.040	–	–	–	–
Zn	(mg/L)	0.5	–	–	–	–	–	0.100	0.09	0.040	–	–	–	–
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	–	–	–	–	–	8.1	7.8	7.9	–	–	–	–

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	**Strathcona (Moose Lake)**
Company Name	**FALCONBRIDGE LTD.**
Operator Name	**Falconbridge Ltd.**
City	**Onaping**
Province	**Ontario**
Region	**Ontario**
Latitude/Longitude	**46° 40' N / 81° 20.5' W**
Sector	**Base Metals**
Product	**Nickel-Copper-Cobalt-Platinum-Palladium**
Regulatory Status	**Guidelines**
Effluent Discharge Point	
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/day)	–	19 630	40 660	47 320	177 100	95 560	104 700	33 380	30 600	55 182	221 600	170 700	89 930
TSM	(mg/L)	25.0	0.660	0.730	1.100	2.200	0.580	0.560	1.100	1.000	1.100	0.900	0.800	0.600
As	(mg/L)	0.5	0.001	0.001	0.001	0.001	0.001	0.002	0.001	0.001	0.001	0.001	0.001	0.001
Cu	(mg/L)	0.3	0.012	0.013	0.022	0.036	0.021	0.016	0.010	0.005	0.012	0.015	0.013	0.019
Ni	(mg/L)	0.5	0.070	0.070	0.110	0.140	0.060	0.050	0.050	0.070	0.070	0.070	0.070	0.090
Pb	(mg/L)	0.2	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Zn	(mg/L)	0.5	0.002	0.002	0.004	0.007	0.005	0.012	0.013	0.017	0.015	0.008	0.007	0.010
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	7.3	6.7	7.0	6.9	6.8	7.0	7.0	7.0	6.8	7.0	7.3	7.3

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	**Sullivan**
Company Name	**COMINCO LTD.**
Operator Name	**Cominco Ltd.**
City	**Kimberley**
Province	**British Columbia**
Region	**Pacific and Yukon**
Latitude/Longitude	**49° 42' N / 116° 00' W**
Sector	**Base Metals**
Product	**Zinc-Lead-Silver**
Regulatory Status	**Guidelines**
Effluent Discharge Point	**Kootenay**
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/day)	–	12 096	21 600	30 240	15 696	17 353	25 920	22 320	19 263	27 360	19 083	17 280	18 720
TSM	(mg/L)	25.0	3.000	4.000	5.000	3.000	1.000	3.000	3.000	2.000	5.000	2.000	1.300	2.000
As	(mg/L)	0.5	0.001	0.005	0.003	0.001	0.001	0.002	0.001	0.002	0.001	0.001	0.001	0.001
Cu	(mg/L)	0.3	0.003	0.013	0.005	0.003	0.002	0.002	0.003	0.006	0.005	0.001	0.004	0.130
Ni	(mg/L)	0.5	–	–	–	–	–	–	–	–	–	–	–	–
Pb	(mg/L)	0.2	0.010	0.016	0.036	0.030	0.012	0.032	0.015	0.003	0.024	0.016	0.009	0.010
Zn	(mg/L)	0.5	0.200	0.230	0.280	0.300	0.130	0.290	0.140	0.080	0.310	0.170	0.130	0.160
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	9.6	9.3	9.4	9.1	9.1	9.1	9.3	9.5	9.2	9.3	9.4	9.5

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	**Tanco**
Company Name	**CABOT CORPORATION**
Operator Name	**Tantalum Mining Corporation of Canada Limited**
City	**Lac du Bonnet**
Province	**Manitoba**
Region	**Prairie and Northern**
Latitude/Longitude	**50° 26' N / 95° 27' W**
Sector	**Base Metals**
Product	**Lithium-Cesium-Rubidium**
Regulatory Status	**Guidelines**
Effluent Discharge Point	**Tailings Pond Discharge**
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/month)	–	71 500	63 144	79 300	70 000	65 000	64 500	61 900	133 000	183 128	98 500	678 000	61 500
TSM	(mg/L)	25.0	20.000	24.800	22.400	15.400	18.600	**27.100**	16.600	10.700	14.800	18.900	24.100	15.600
As	(mg/L)	0.5	–	0.012	–	–	–	0.013	–	–	–	–	–	–
Cu	(mg/L)	0.3	–	0.003	–	–	–	0.012	–	–	–	–	–	–
Ni	(mg/L)	0.5	–	0.005	–	–	–	0.018	–	–	–	–	–	–
Pb	(mg/L)	0.2	–	0.001	–	–	–	0.001	–	–	–	–	–	–
Zn	(mg/L)	0.5	–	0.020	–	–	–	0.020	–	–	–	–	–	–
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	7.2	7.0	7.3	7.4	8.7	9.7	9.5	9.2	8.7	8.3	8.2	7.8

Boxed data indicates that a monthly effluent quality standard (MEQS) was exceeded for that month.

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	**Thompson Cplx & Birchtree**
Company Name	**INCO LIMITED**
Operator Name	**INCO Limited**
City	**Thompson**
Province	**Manitoba**
Region	**Prairie and Northern**
Latitude/Longitude	**55° 42' N / 97° 55' W**
Sector	**Base Metals**
Product	**Nickel-Copper**
Regulatory Status	**Guidelines**
Effluent Discharge Point	**T3 Culvert**
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/month)	–	1 556 000	1 058 000	1 537 000	1 544 000	2 591 000	2 131 000	923 129	1 729 000	1 802 000	1 732 000	1 587 000	1 583 000
TSM	(mg/L)	25.0	4.000	2.000	2.000	5.000	2.000	2.000	2.000	4.000	3.000	2.000	2.000	4.000
As	(mg/L)	0.5	–	–	–	–	–	–	–	–	–	–	–	–
Cu	(mg/L)	0.3	–	–	–	–	–	–	–	–	–	–	–	–
Ni	(mg/L)	0.5	0.200	0.180	0.190	0.250	0.280	0.140	0.160	0.170	0.210	0.230	0.240	0.230
Pb	(mg/L)	0.2	–	–	–	–	–	–	–	–	–	–	–	–
Zn	(mg/L)	0.5	–	–	–	–	–	–	–	–	–	–	–	–
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	6.9	6.9	6.8	6.9	8.0	8.8	8.6	8.3	8.4	7.8	7.4	6.9

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	**Thompson Mill**
Company Name	**INCO LIMITED**
Operator Name	**INCO Limited**
City	**Thompson**
Province	**Manitoba**
Region	**Prairie and Northern**
Latitude/Longitude	**55° 42' N / 97° 55' W**
Sector	**Base Metals**
Product	**Nickel-Copper**
Regulatory Status	**Guidelines**
Effluent Discharge Point	**Tailings Pond Discharge**
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/month)	–	3 004 167	2 483 780	2 865 418	2 999 115	7 565 309	4 604 121	3 253 006	1 744 632	1 860 540	2 233 494	2 337 516	2 462 197
TSM	(mg/L)	25.0	4.000	3.000	3.000	3.000	4.000	8.000	5.000	2.000	1.000	3.000	2.000	3.000
As	(mg/L)	0.5	–	–	–	–	–	–	–	–	–	–	–	–
Cu	(mg/L)	0.3	–	–	–	–	–	–	–	–	–	–	–	–
Ni	(mg/L)	0.5	0.430	0.470	0.480	0.490	0.390	0.420	0.410	0.310	0.280	0.320	0.450	0.540
Pb	(mg/L)	0.2	–	–	–	–	–	–	–	–	–	–	–	–
Zn	(mg/L)	0.5	–	–	–	–	–	–	–	–	–	–	–	–
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	7.5	7.6	7.5	7.6	7.7	8.3	8.3	8.5	8.3	8.1	7.9	7.6

Boxed data indicates that a monthly effluent quality standard (MEQS) was exceeded for that month.

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	**Troilus**
Company Name	**INMET MINING CORPORATION**
Operator Name	**Inmet Corporation**
City	**175 km North of Chibougamau**
Province	**Québec**
Region	**Québec**
Latitude/Longitude	**51° 00' N / 74° 30' W**
Sector	**Precious Metals**
Product	**Gold-Copper**
Regulatory Status	**Regulations**
Effluent Discharge Point	**BS-2**
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/day)	–	3 338	3 348	4 068	6 422	7 884	6 372	4 608	5 049	6 484	7 410	10 314	5 839
TSM	(mg/L)	25.0	2.000	7.000	7.000	14.000	7.000	4.000	5.000	4.000	7.000	7.000	8.000	8.000
As	(mg/L)	0.5	–	–	0.050	–	–	–	–	–	0.050	–	–	–
Cu	(mg/L)	0.3	0.010	0.080	0.040	0.040	0.040	0.050	0.040	0.020	0.020	0.010	0.010	0.010
Ni	(mg/L)	0.5	0.010	0.040	0.010	0.040	0.020	0.010	0.010	0.050	0.050	0.050	0.050	0.050
Pb	(mg/L)	0.2	0.020	0.010	0.020	0.050	0.010	0.030	0.010	0.050	0.050	0.050	0.050	0.050
Zn	(mg/L)	0.5	0.060	0.050	0.050	0.040	0.010	0.020	0.050	0.030	0.010	0.010	0.010	0.020
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	8.1	8.1	8.0	7.5	7.9	7.8	8.0	7.7	7.8	7.7	7.7	7.7

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	**Troilus**
Company Name	**INMET MINING CORPORATION**
Operator Name	**Inmet Corporation**
City	**175 km North of Chibougamau**
Province	**Québec**
Region	**Québec**
Latitude/Longitude	**51° 00' N / 74° 30' W**
Sector	**Precious Metals**
Product	**Gold-Copper**
Regulatory Status	**Regulations**
Effluent Discharge Point	**PR-1**
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/day)	–	14 256	–	10 080	22 694	11 376	12 576	16 884	–	10 440	–	–	14 227
TSM	(mg/L)	25.0	6.000	–	6.000	10.000	6.000	10.000	6.000	–	5.000	–	–	5.000
As	(mg/L)	0.5	–	–	0.050	–	–	–	–	–	0.050	–	–	–
Cu	(mg/L)	0.3	0.010	–	0.010	0.020	0.020	0.060	0.010	–	0.010	–	–	0.010
Ni	(mg/L)	0.5	0.010	–	0.010	0.010	0.005	0.020	0.010	–	0.050	–	–	0.050
Pb	(mg/L)	0.2	0.020	–	0.005	0.050	0.010	0.010	0.010	–	0.050	–	–	0.050
Zn	(mg/L)	0.5	0.040	–	0.020	0.010	0.010	0.010	0.010	–	0.010	–	–	0.030
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	7.1	–	7.6	7.2	7.3	7.00	7.2	–	7.1	–	–	6.7

Metal Mining Liquid Effluent Regulations (MMLER) & Guidelines (MMLEG)

Monthly Average Effluent Quality Data in 2001

Mine/Mill Name	**Trout Lake**
Company Name	**HUDSON BAY MINING AND SMELTING CO., LTD**
Operator Name	**Hudson Bay Mining and Smelting Co. Ltd**
City	**Near Flin Flon**
Province	**Manitoba**
Region	**Prairie and Northern**
Latitude/Longitude	**54° 50' N / 101° 49' W**
Sector	**Base Metals**
Product	**Copper-Zinc-Gold-Silver**
Regulatory Status	**Regulations**
Effluent Discharge Point	**Treatment Plant Discharge**
Comments	

Parameters		Limits	January	February	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.
Flow	(m^3/month)	–	24 800	22 600	15 000	35 000	20 900	25 200	37 200	0	9 000	30 700	33 400	33 300
TSM	(mg/L)	25.0	25.000	19.000	7.000	3.000	3.000	3.000	2.000	–	2.000	2.000	1.000	3.000
As	(mg/L)	0.5	–	0.008	0.020	0.010	0.010	0.010	0.004	–	–	0.004	0.003	0.003
Cu	(mg/L)	0.3	0.020	0.020	0.066	0.050	0.010	0.030	0.030	–	0.010	0.030	0.030	0.020
Ni	(mg/L)	0.5	0.010	0.010	0.004	0.010	0.010	0.010	0.010	–	0.010	0.010	0.010	0.360
Pb	(mg/L)	0.2	0.040	0.020	0.004	0.040	0.040	0.040	0.040	–	0.040	0.040	0.040	0.040
Zn	(mg/L)	0.5	0.110	0.080	0.184	0.060	0.040	0.120	0.130	–	0.070	0.030	0.010	0.100
Ra-226	(pCi/L)	10.0	–	–	–	–	–	–	–	–	–	–	–	–
pH		>6.0	9.8	9.8	9.1	9.4	9.5	9.3	9.2	–	8.6	9.4	9.4	9.4